



# WORLDS OF SCIENCE FICTION

JUNE

35 CENTS

## EXCLUSIVE!

Eminent Men of Science  
Preview "Project Vanguard"  
Man's First Skirmish in  
the Conquest of Space!

IN THIS ISSUE:

## SATELLITE

By JAMES M. NUDING  
with PAUL J. VANOUS

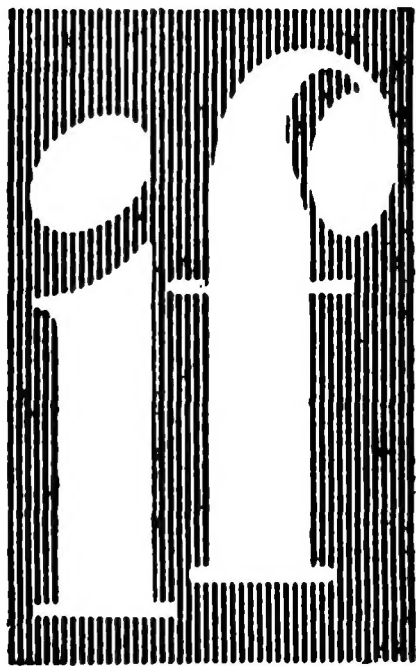






**TESTING ENGINES FOR STAGE ONE**—The two rocket motors for Stage One are mounted here in tandem for test firing prior to installation in the air frame. These motors are designed to yield three hundred thousand pounds of thrust to lift the three stage assembly. The test crew is stationed in a heavily armored vehicle downslope from the test stand to observe the firing. The vibration and roar created by these monster engines is inconceivable to anyone who has not witnessed such a firing. Men have been known to assume the foetal position, or lose control of their bodily functions, under its impact. (Now see inside back cover.)





# WORLD'S of SCIENCE FICTION

JUNE 1956

All Stories New and Complete

Editor: JAMES L. QUINN

Assist. Editor: EVE WULFF

Art Editor: MEL HUNTER

Production Mgr.: S. MILLER

## SPECIAL!

**SATELLITE** by James M. Nuding and Paul J. Vanous **34**  
(First of Two Parts)

## NOVELETTES

**THE CRACKPOTS** by Harlan Ellison **4**  
**Z** by Charles L. Fontenay **40**

## SHORT STORIES

**THE SCAMPERERS** by Charles A. Stearns **60**  
**WHAT SHALL IT PROFIT?** by Poul Anderson **74**  
**AFTER SOME TOMORROW** by Mack Reynolds **90**  
**NIGHT COURT** by Norman Arkawy **102**

## FEATURES

**EDITOR'S REPORT** **2**  
**WHAT IS YOUR SCIENCE I.Q.?** **59**  
**SCIENCE BRIEFS** **113**  
**HUE AND CRY** **116**

## COVER:

Three-stage Satellite Rocket by Mel Hunter

IF is published bi-monthly by Quinn Publishing Company, Inc. Volume 6, No. 4. Copyright 1956 by Quinn Publishing Co., Inc. Office of publication, 8 Lord Street, Buffalo, New York. Entered as Second Class Matter at Post Office, Buffalo, New York. Subscription \$3.50 for 12 issues in U.S. and Possessions; Canada \$4 for 12 issues; elsewhere \$4.50. Allow four weeks for change of address. All stories appearing in this magazine are fiction; any similarity to actual persons is coincidental. Not responsible for unsolicited artwork or manuscripts. 35c a copy. Printed in U.S.A.

EDITORIAL AND BUSINESS OFFICES, KINGSTON, NEW YORK

*Next (August) issue on sale June 12th*

# Editor's REPORT

**A YEAR** from now (and who doesn't know it?) science will embark on the most colossal probing of the mysteries of the universe the world has ever known. The occasion, of course, is the International Geophysical Year—an 18-months "year" which will last from July 1, 1957, through December, 1958. During this time 40 nations will pool their scientific brains to prove a lot of things and to disprove a lot of other things. Weather, gravity, outer atmosphere, latitudes and longitudes, oceanography, earthquakes, glaciology and many other pertinent subjects will get close clinical scrutiny. It's going to be an exciting 18 months, not only for the science minded and the science fiction fan but for anyone who can read, write, see, feel, smell or hear.

**BEGINNING** in this issue, we are publishing a series of articles that may well turn out to be a world scoop on anticipating the design

and functioning of the artificial satellite to be launched through "Operation Vanguard", one of the United States' most prominent contributions to the IGY—and certainly the most dramatic. Since the first announcement by President Eisenhower, there has been a bombardment of newspaper, radio and TV stories, but still the public has received only a vague, general idea of what this first (if Russia doesn't make good its boast) artificial satellite is actually going to be like. Being a top-secret project, this is only natural. And it's going to be a good while before anybody gets the Government's own story. However, we did the next best thing: we sought the calculated predictions of scientists who, though not connected with "Project Vanguard", are actively engaged in various phases of rocket development—rocket design, propulsion, astrophysics, instrumentation and other phases of astronautics. They are men high in their fields—and, we believe, what they present will be very, very close to the satellite of "Project Vanguard". The authors of the first two articles are James M. Nuding and Paul J. Vanous, who present a plan for constructing and launching the satellite vehicle, and the instrumentation and operation of the actual satellite after it reaches its orbit.

**JAMES M. NUDING** is lead Research Engineer, Atomic Research Energy and Problems of Instrumentation, at North American Aviation. His rise to eminence has the flavor and color of a story by



Horatio Alger. Born in Oakland, California, in 1905, he was orphaned at the age of ten. Through training received in technical classes in high school and night school, he was able to secure a license as a radio operator. His first job as a radio operator was aboard a four-masted barque bound for the Bering Sea. From "wind jammering" he went to the Coast Guard, where he served aboard a rum-runner in the same capacity. After leaving the Coast Guard he had a variety of jobs which included experimenting with X-ray, glass blowing for neon tubes, and work on high-voltage electrical systems.

His first big step upward in the field of science was when he went to Stanford University to work on the Klystron Project, under the Varian brothers. (The klystron, incidentally, is a gadget that makes possible U.H.F. transmission.) A year later, he went to Sperry Gyro to work out commercial applications for the klystron. When the Sperry laboratories moved east, he went to the University of California, where he worked, under Professor Lawrence, on TUBA, a radar-jamming device used in World War II. After a short tenure here he transferred to the 60-inch cyclotron lab, becoming its chief of operations.

In 1942, with the war at fever pitch, he was again transferred, this time to the Calutron Project, where he experimented with an electronic device for separating the U235 isotope for use in the A-bomb. Within a year he was a supervisor

and training head. In 1943 he was sent to Oak Ridge and for three years he was engaged in work on process improvement of the Electromagnetic Separation Plant. He went to North American Aviation in 1946 and has remained there since.

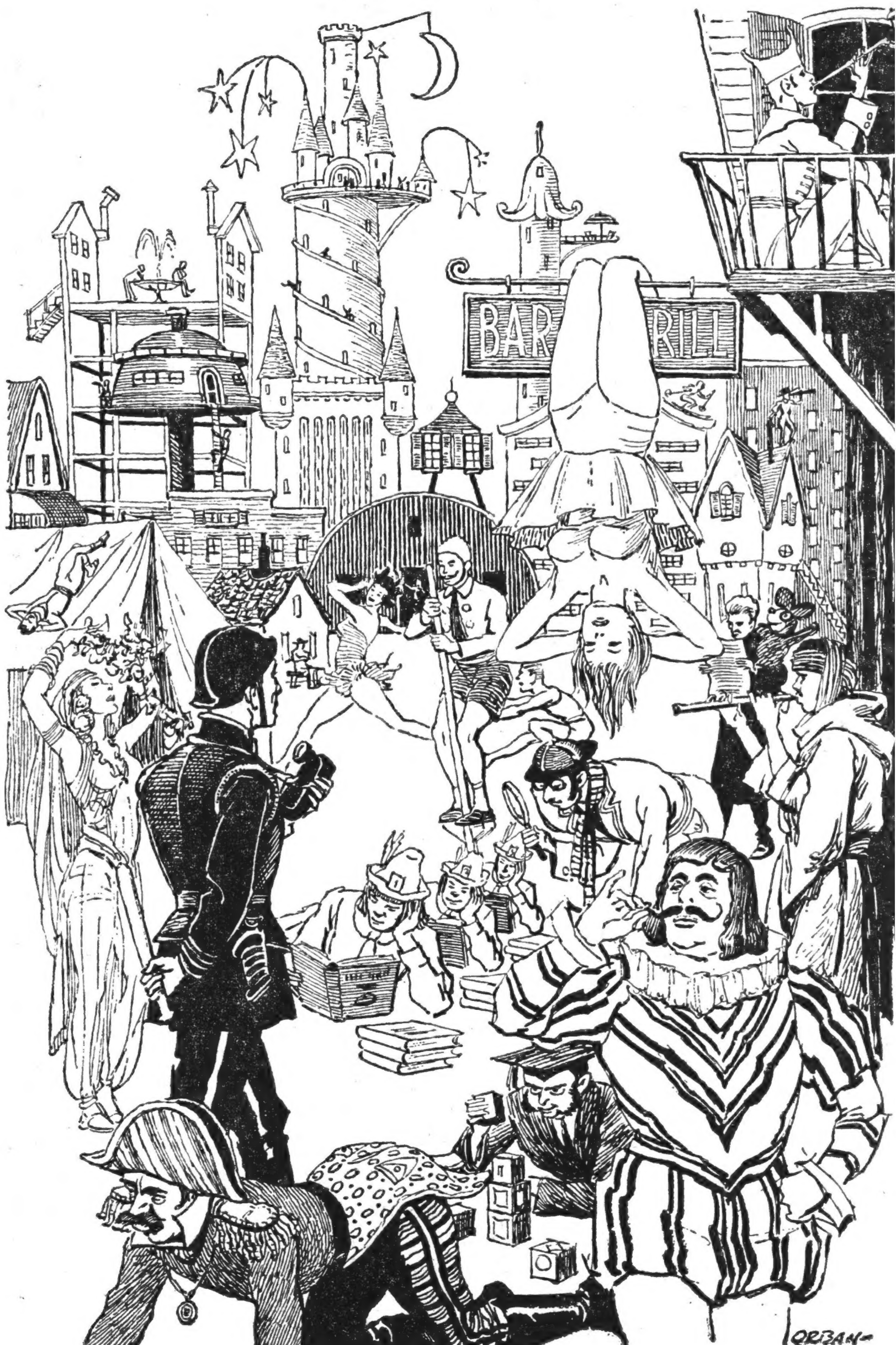
James Nuding is a long time member and former president of the Pacific Rocket Society, an active group dedicated to the pursuit of astronautical research and the furtherance of space flight. Under the auspices of this organization, he became one of the pioneers in the actual designing, building and firing of many of the successful rockets which have roared into southern California skies.

**PAUL J. VANOUS**, a young man of 31 years, is Microwave Senior Design Engineer, Missile Guidance Systems Division, at Bendix Aviation. A resident of Burbank, California, he holds a degree in Electrical Engineering from the University of California and a membership card in the Microwave Chapter of I.R.E. Much of his time is spent flying across the country on problems of component development. Mr. Vanous made the original designs and drawings from which the interior illustrations and June and August covers were adapted.

**MUCH MORE** could be written about James Nuding and Paul Vanous. I wish we could run a more detailed story about each instead of this brief introduction.

*(Continued on page 120)*







*"Operation Vanguard", Man's first skirmish with outer space, has fired the imaginations of millions who want to know: What will the Satellite actually look like? How will it reach its orbit? What instruments will it carry and what will they tell us? . . . Here are the predictions of two eminent rocket men.*

# SATELLITE

FIRST OF TWO PARTS

BY JAMES M. NUDING

*Lead Research Engineer, Atomic Research Energy and Problems of Instrumentation, North American Aviation*

WITH PAUL J. VANOUS

*Microwave Senior Design Engineer, Missile Guidance Systems Division, Bendix Aviation*

**T**HE THOUGHT that Man might someday contrive to hoist himself by his own bootstraps across the last, and most formidable of the great frontiers into Space, has inflamed the imagination of writers, scientists and laymen for many generations. Out of these imaginations over the years, have come ideas. From the many fields of science and engineering have come concepts and mechanical improvements, until at last

the weak sputter that filtered through Dr. Goddard's basement window has been raised to the shattering roar of today's rocket motors, producing horsepower measured in large chunks of a million. Power in amounts almost unimaginable a few years ago has come into our hands; and with it, the announcement by the President of the United States that this nation will pioneer in the exploration of the space frontier by launching a tem-



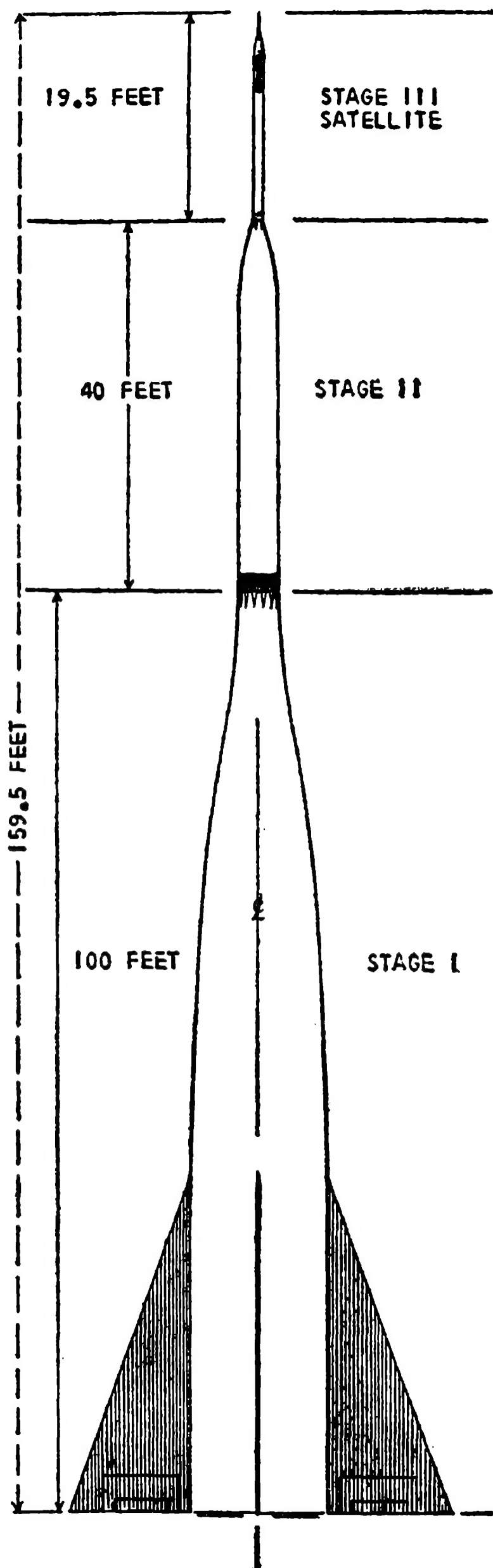
porary satellite into a predetermined orbital path around the Earth.

This launching of an Earth Satellite Vehicle is perhaps the most exciting of all the projects planned for the International Geophysical Year 1957. The program, known as "Project Vanguard", can, if it is successful, contribute more to the science of the world in general than any other single project envisaged. The mere fact that the Satellite when launched must necessarily fly over all the countries of the world, will call for a mutual trust and cooperation between them which will be unprecedented.

Coupled with this is the fact that such a Satellite will offer an unparalleled opportunity for science to study the physical phenomena surrounding the earth. During the past hundred years, Man, despite being earthbound, has made enormous strides toward understanding the universe. However, the limitations of not being able to mount his instruments above the heavy blanket of the atmosphere, has forced many of the problems to remain unsolved. With today's knowledge of rockets and instrumentation this need no longer be true.

There appear to be four main objectives to be accomplished in "Project Vanguard", the first of which is the testing of the feasibil-

*At right are the dimensions of the three-stage Satellite rocket, the Satellite itself being the third stage. The "basketball" shape theory is exploded as impractical. The Satellite is here shown to be needle-shaped, 19.5 feet long and one foot in diameter.*





ity of constructing a three stage Rocket-Satellite Vehicle and successfully establishing it in an orbit around the earth. Viewed from the standpoint of an astronautical enthusiast, the successful accomplishment of the first objective will justify the expense and effort of the whole project. However, since public funds are being spent in the financing of the program, other things must be accomplished to satisfy not only the general public, but also the scientists concerned with the Geophysical Year.

The second objective is the instrumentation of the third stage so that once in orbit, information of interest to the I.G.Y. scientists can be collected by it and transmitted to strategically placed monitor stations on the ground. From the viewpoint of the scientists, the accomplishment of the second objective will be the main justification; the more diverse the information collected, the more priceless the Satellite's contribution to research.

The knowledge gained by the second objective will be of vital importance in the accomplishment of the next step. This will be the planning of larger, more elaborate, and possibly manned satellites to be built in the future. The third objective, we feel, is probably of major interest to the military and, if pursued with the proper attitude, can be of inestimable value in the preservation of world peace.

The fourth objective is of longer range and possibly of somewhat visionary character, although one which should not be dismissed be-

cause of the lack of immediacy. It is the exploration of the hazards of space and the gaining of knowledge of space travel in general. Once a space vehicle has been manned, interplanetary exploration and travel will be the next logical step.

It is well to point out at this time that the actual design specifications to be used in the satellite project will undoubtedly involve rockets and instrumentation which are part of the military security of the United States, and as such have already been classified as secret. But since the authors of this article have no connections with, or sources of information from, "Project Vanguard", it will be interesting to see how close an "educated guess" will bring us to what actually develops.

**W**E feel that the "basket ball" nomenclature was an unfortunate choice. In the first place, it is very unlikely that the Satellite will look anything like a basket ball. The diameter of a basket ball is roughly twelve inches, and in order to put such a sphere into an orbit around the earth it must be carried there by a missile whose diameter must necessarily be somewhat larger. The missile must contain besides its propulsion system and guidance mechanism, a device for expulsion of the satellite. If this device is to

*Scale at right shows altitudes at which first and second stages drop away. Nuding and Vanous predict that orbit eventually will be 300 miles above Earth's surface instead of 200 or 250 miles.*



300 MILES

STAGE III REACHES ORBIT

VELOCITY - 17,400 M.P.H.

190 MILES

STAGE II DROPS OFF  
VELOCITY 15,000 M.P.H.

JETTISONED STAGE II  
COASTS NEARLY AROUND  
EARTH BEFORE FALLING  
BACK TO BURN AWAY BY  
AIR FRICTION

JETTISONED STAGE I COASTS  
TO 60-70 MILES BEFORE  
FALLING BACK TO EARTH

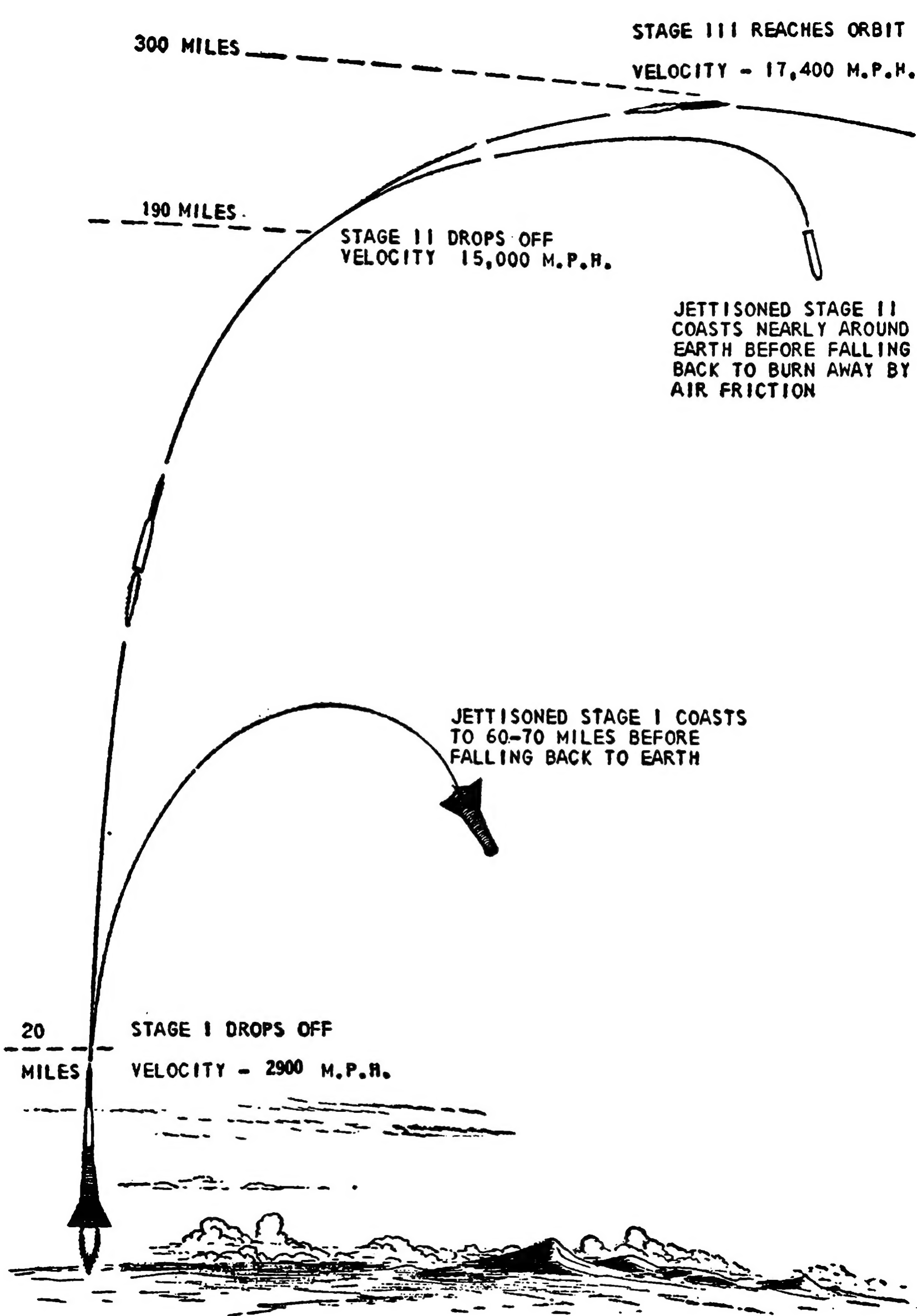
20

MILES

STAGE I DROPS OFF

VELOCITY - 2900 M.P.H.

SATELLITE





add any appreciable velocity to that already attained from the carrier rocket, it will have to contain additional fuel in the form of an explosive charge. This explosive and the gun-like mechanism would be heavy, requiring many thousands of pounds of fuel in the first and second stages just to get it up there.

Assuming that we have placed a "basket ball" in orbit, what of value, if anything, will we have? A little rough calculation will show that a sphere twelve inches in diameter can contain very little useful instrumentation. It is possible that it could hold a battery operated power supply and a small radio transmitter of sufficient strength to be heard back on earth. By no amount of miniaturization however, could we squeeze in much of anything else. Authorities on upper atmosphere research agree that a Satellite Vehicle placed in a stable orbit 300 miles up could probably stay there a year before it fell back to earth. If this is so, then obviously no battery would be sufficient to power the transmitter for that length of time. Also, if the Vehicle is going to be circling the earth for that period of time, common sense dictates that it should be so instrumented that full advantage be taken of its sojourn in space.

It is true that some useful information other than the mechanics of getting up there, could be obtained from an uninstrumented Vehicle orbiting around the earth at a known altitude and velocity. Deviations in its orbital path as a

function of geographical location would provide some clue to the deviations in the earth's magnetic field. Change in orbital velocity as a function of time and latitude would tell something about the density of the residual atmosphere through which the Satellite must travel as it slowly spirals its way back to earth. With the exception of these two bits of information, it is unlikely that anything of importance could be obtained from an uninstrumented vehicle. However, if the whole third stage of the rocket assembly is utilized, as it probably will be, the increased available volume and the great saving in weight will allow a much more elaborate instrumentation system to be put in orbit, with a correspondingly greater amount of useful information transmitted.

The designing and building of a rocket combination which is capable of raising the Satellite Vehicle to an altitude of up to 300 miles, is in itself an engineering feat of major importance. It is true that the United States has already sent a two stage rocket (Bumper Project) up 250 miles; but one must remember that the second stage of Bumper was a relatively small rocket with a very small payload. This was launched vertically and arrived at its 250 mile altitude with zero velocity, whereupon it merely fell back to earth.

In the case of the Satellite's second stage, it must, while carrying the relatively heavy third stage, arrive at or near the 300 mile goal in a fairly horizontal position and path. It must also at this time have



achieved a large fraction of the 17,400 miles per hour horizontal velocity necessary to keep the satellite in orbit. To do this it is necessary that stage one and stage two be BIG rockets!

**STAGE ONE** will probably be larger than any single rocket that has ever flown up to this time and will most likely consist of two of the largest rocket motors built, mounted side by side. It will develop in the neighborhood of 300,000 pounds of thrust for a period in excess of one minute. It will be about 15 feet in diameter and approximately 100 feet high. Its total weight will be on the order of 200,000 pounds, 150,000 pounds of which will be liquid fuel and oxidizer. The fuel will be alcohol or some similar liquid and the oxident will be liquid oxygen.

The propulsion system will be a modernized version of that used in the V2 rockets, i.e.—a steam or gas driven turbo-pump which draws the fuel and oxident from large storage tanks and forces them, at about 350 pounds per square inch pressure, through spray nozzles and combustion chambers where they combine and burn. The resultant hot gases, escaping through the motor nozzles, furnish the impulse which causes the assembly to rise.

Stage one will carry in its upper end, just below the socket where stage two sits, an electronic "brain" which will take controlling impulses from the master "brain" located in stage three. These impulses will be amplified and fed

to servo-mechanisms located in the tail which will in turn actuate the steering vanes on the fins and also carbon vanes in the jet stream, just below the rocket nozzles. These carbon vanes will stabilize the rocket during the period in take-off when tail fins are ineffective.

Stage II may well be a Viking rocket or one similar in size and performance. The small tail fins used by the Viking could very well be left off in the case of the second stage. The motor mounted on a gimbal allows it to be swiveled in any direction, thus permitting the thrust from the jet to be used to steer the rocket after it has left the atmosphere—where tail fins would have nothing to bear against.

The apparently excessive size of Stage I and Stage II is necessitated by the fact that nearly all of the 300 mile altitude and the 17,400 mile per hour orbital velocity must be attained by the second stage so that fuel left in Stage III can be used for making orbital corrections in both position and velocity.

Stage III, which will also be the Satellite itself, should be a rocket with the performance characteristics of the Aerobee and with a guidance system similar to that of the Wac Corporal. While it should resemble the system of the Wac Corporal, it will require a considerable amount of modification to fit it for use as a satellite. This would involve mounting the motor on gimbals, and the installation of hydrogen peroxide jets mounted laterally for making altitude and roll corrections.

*(Continued on page 89)*





*Illustrated by Ed Emsh*



*Time reversal exists at the sub-atomic level according to Feynman's Theory—and according to that same theory any entity can exist in three places at one time . . . Does this explain the strange co-existence of Summer, Mark and Wyn?*

# Z

BY CHARLES L. FONTENAY



**W**HAT SCIENTIFIC or supernatural principle is behind the mysterious appearances recorded some years ago by Mr. Charles Fort, I'm sure I don't know. It could, of course, be the same as that behind the sudden appearance of Wyndham Storm in Central Park, but I don't believe I've heard of a case that exactly paralleled this one.

I gather from a perusal of Mr. Fort's works that it is not uncommon for these unheralded visitors to come onstage without the for-



quality of clothing; but I don't believe it's customary for them to bring their wives along.

I got caught in a thunderstorm that night in Central Park—not New York's Central Park, but Allertown's Central Park, which isn't as big. Having no raincoat—the skies had appeared clear when I left home for the movies—I took refuge in the big octagonal bandstand.

The storm was brief, but spectacular; one of those violent affairs that often mark the arrival of a cold front to dispel an unusually intense midsummer heat wave. The rain slashed across the park in wind-whipped sheets, managing to drench me even in my shelter. Big trees bowed low and reluctantly hurled away leaves and limbs. Thunder rolled incessantly and the lightning made an eerie daylight of the blackness.

Suddenly, there was a terrific clap of thunder and a fiery flash that blotted out everything around me. Shaken, I picked myself up from the floor of the bandstand, still not sure I hadn't been struck. Blue smoke was boiling away from a wrecked tree about thirty feet away, in the midst of a clump of charred, waving shrubbery.

And like Venus rising from the foam the naked woman stepped out of the shrubbery, followed by the naked man.

My first impulse was to laugh at these two whom the storm had chased from their hiding place and to be astonished at their brashness in disrobing completely in the heart of the park. Then it occurred to

me that the lightning must have stripped them. They might be hurt.

I jumped from the bandstand and walked swiftly over to them. To my utter amazement, the young woman promptly threw her arms around my neck and said:

"Whatever has just happened, Don, I want you to know it's you I love."

Then she kissed me.

"What on earth!" I exclaimed, disengaging myself. The man was looking from one to the other of us, mutely.

"I'm Summer Storm and this is my husband, Wyn Storm, and we live at 138 March Street," she said, all in a rush. "Oh, Don, I'm sorry you don't know us any more, but I should have known from the way Wyn was acting and everything that's going to happen . . ."

"Wait a minute, wait a minute!" I interrupted. "I don't know you. How did you know my name?"

She didn't answer, but just stood there, looking at me intently. I averted my eyes. I was beginning to recover from shock enough to be embarrassed.

"How about this?" I asked the man. "Why should I know you, and where do you come from?"

"I'm afraid I don't know," he replied, sounding perfectly honest about it. "I'm afraid I don't remember anything. Do you suppose I have amnesia?"

"That's possible," I said. "But your wife seems not to be bothered with it. All right. Summer Storm and Wyn Storm it is—but the names are too trite in these circumstances not to be false. Both of



you had better get back in the shrubbery while I get some help."

I found the policeman on the Main Street beat. As I thought, it was my old friend, Gus Adams. He accompanied me back to the park, the rain gleaming on his slicker.

"They picked a good address to lie about," he said, when I had explained the situation to him on the way. "The house at 138 March Street is vacant."

"They're probably spooners who got caught by that lightning bolt and are too ashamed to give their right names," I said. "If they had any clothes, I don't know what happened to them. I didn't see any in those bushes."

"What do you figure I ought to do with them, Mr. Gracey?" he asked.

"They look like decent youngsters," I said. "If it's all right with you, we'll take them out to my house until they're ready to let me help them get back where they came from."

"You're taking a chance," he grunted. But we wrapped the woman in his slicker and tied my best suit coat around the man's waist. Gus called the town's only patrol car and had them drive us out to my house.

I suppose nudists and doctors eventually reach the point where they look on nakedness as normal. But, to me, my "orphans of the storm" looked a lot more like human beings when I had them clothed in a couple of my old sweaters and some slacks.

They might have been twins. For all I knew, they were, in spite of

the woman's claim that they were man and wife. Their eyes were an identical sky-blue, their hair an identical pale, wavy gold. Her hair was cut short, his needed cutting, so they were a good match. I judged their ages to be about 23, although I've been over-estimating young women's ages since I passed 30.

"Now, suppose you tell me where you're from and what this is all about," I said sternly, when they had finished eating the meal I had rustled up for them.

The man spread his hands and, for the first time, he smiled. It was the smile of an archangel. Whatever the failure of his memory, his smile was that of wisdom and patience. I was to find, not much later, that the woman's smile was its feminine counterpart.

"I'm afraid I don't remember anything before standing in the park in the rain," said the man.

"What wrong? What's wrong, Don?" demanded the woman, a note of hysteria in her voice. "What's happening to us?"

"It's just that I don't understand this situation at all," I said. "You say you're husband and wife. Then you won't mind both sleeping here in the den, and tomorrow we'll see what we can find out."

In this remarkable fashion began a remarkable fifteen years.

**L**OOKING BACK on it, I suppose I loved Summer Storm from the time I saw her. I've been trying to decide what that makes me. Incestuous? Just narcissistic?



Or, perhaps, Jovian?

She was alone in the den when I looked in the next morning before breakfast. Wyn—short for “Wyndham,” I learned later—was wandering around in the back yard, looking lost.

Summer had a pair of my scissors in her hand, evidently preparing to trim her hair. Somewhat to my surprise, she looked contrite when she saw me.

“I just thought I might look better with short hair,” she explained.

“Good Lord, it’s too short now!” I exclaimed. “I like women with long hair.”

She hesitated, then reached up to begin clipping. Somewhat nettled, I turned on my heel and walked out.

That incident is noteworthy for its strange sequel. At breakfast, I was thunderstruck to observe that Summer Storm’s hair was long—at least shoulder length, for it was done up in a neat bun behind her head. Where in my house had she found a wig to match her own hair? And how long must the wig have been originally, for her to have cut from it the long tresses I found later in the wastebasket?

After breakfast, I took Wyn with me to check on the house at 138 March Street. I left Summer at home. Although she claimed to remember things and Wyn said he couldn’t, I could make nothing of her “memories.” There was a strangeness about talking with her, too, something I couldn’t quite put my finger on yet.

As Gus had said, the house at 138 March Street was vacant. It

was for rent. The owner, old Albert Meecham, lived next door, and I made an impulsive decision on the spot.

“Your wife insists you live here, so you two must be connected with this address in some way,” I told Wyn. “I’ll rent the place for you while we’re trying to run down some information on your background. If you decide to stay in Allertown, you can pay me back after you get a job.”

The only way I knew to probe the origins of Wyn and Summer was through the customary channels. That afternoon, I went down to the police station to talk with my friend, Gus, before he started on his beat.

The Allertown police station is nothing but a room in the ancient city hall, a block off Main Street, but it does have a separate outside entrance. Gus was sitting on a bench in the shade by the entrance, fanning himself with his cap. The perspiration pasted his dark blue shirt to his well-padded arms and chest. The relief the storm had brought hadn’t lasted long.

I sat down on the other end of the bench.

“Gus,” I said, “can you fellows help me find out who those people are we picked up in the park last night? It’s funny, but the man has amnesia, and I think the woman’s a little strange in the head.”

Gus looked at me a little reproachfully. He laid the cap down, to pull his handkerchief from his hip pocket and mop his brow.

“You mean that story you told me was the truth?” he asked. “I

thought they might be some relatives of yours, that had got into some sort of a scrape. Both of them look a lot like you."

"Do they? Well, they're no relatives of mine. I'd like to know just who they are. Mr. and Mrs. Wyndham Storm, she says."

"They don't come from Allertown," he said. "I'd know them if they was from Allertown. But they was raised around in this country somewhere."

"How do you know that?"

"There's a way of talking folks have around here. You don't hear it outside these three or four counties, and you wouldn't notice it if you wasn't watching for it. Take my word for it, those folks was born and raised not fifty miles from here."

"Well, just to be on the safe side, you'd better check to see that they're not wanted criminals," I said. "Amnesia would make a good dodge for a criminal."

"I've already done that," he said quietly. "They're not."

Wyn and Summer weren't missing persons from anywhere in our section of the state, either. Gus looked into that angle very thoroughly during the next few weeks, and reported failure.

Wyn got a job as clerk at McClellan's Dry Goods Store and, for reasons he did not confide to me, enrolled in night classes at Slayden College. He and Summer soon were established in the neighborhood as "that nice young couple that Don Gracey brought in from somewhere out West." How the townspeople got started on that

Western origin theory, I don't know; I suppose it's natural for people to tack some sort of an origin on strangers.

I confess that their origin soon became a matter of minor importance to me, although I remained curious about it. I found Wyn extremely likeable; we became very close friends, although I estimate that I am ten to fifteen years older than Wyn. And, as I say, I was in love with Summer, although it was a long time before I admitted that to myself.

I told myself I felt about Summer as I would my own daughter, if a bachelor like me could say such a thing; and I felt toward Wyn as though he were my son. There was a good deal of accuracy to that description of my feelings, but there was a mystery about Summer that drew me powerfully.

I think the unattainable in woman is always irresistible. Summer had the most peculiar air of unattainability about her I ever have experienced. It was as though, when I touched her, it was a fleeting touch; when I looked at her, I was constantly beset by the feeling that she would, the next instant, shimmer into insubstantiality.

Talking with her heightened this illusion, rather than lessening it. A conversation with Summer was a unique experience. It was a little like two people trying to talk at once, each talking, then each hesitating to let the other have his say. Our words crossed each other, like scissor blades that do not quite meet. She might answer a question before it was asked, or take the



conversation off on tangent after tangent. Disconnected, discontinuous—those adjectives describe our conversations.

Except for his amnesia, dating back to the night in the park, Wyn was perfectly normal. After some time, he confided that he, too, was concerned about Summer's strangeness. I got the impression from him—though he did not go into great detail—that it extended beyond her conversation, to her actions.

"It seems to me that I ought to know what's wrong with Summer," he told me, very puzzled about it. "I mean, it seems I ought to remember. But I don't. I've gone so far as to talk it over with her."

"What did she say?" I asked.

"She said she wasn't going to tell me now. She said she'd tell me one of these days, but that when she did, I'd leave her. She smiled all the time she was saying it, in the strangest way."

Well, we had Summer examined. Old Doctor Lodge is no psychiatrist, but a man isn't a general practitioner for as long as he's been at it without learning something about the way a person's mind ticks. He said there was nothing wrong with Summer, mentally.

"She acts like she's still suffering a little from some sort of shock," he said. "If she was right next to a lightning bolt when it struck, I'm not surprised. It's lasting a little longer than such things usually do, but it'll clear up."

It didn't clear up, but Wyn and I got used to it.

Amateurs, they say, shouldn't

fool around with hypnosis, and I suppose there's a sound reason behind that admonition. But I'm a little better than the average amateur hypnotist. I've not only done a good deal of it at club benefits and what not, but I've read pretty heavily in psychology. I decided to see if hypnotizing Wyn would give me any clue to his past and Summer's.

Summer sat beside me that night at their home, as I went through the familiar motions and Wyn sank into hypnotic trance.

Under hypnosis, Wyn recalled easily everything that had happened since that night in the park. But attempts to regress him past that night brought only a death-like silence, in which he sat pale and immobile. I tried several times, and at last succeeded in getting him in an extremely deep hypnotic state.

Suddenly, Summer interrupted with an exclamation.

"That's me!" she exclaimed. "That's what I told him four years ago!"

"Quiet, Summer," I commanded, looking at her curiously. "I think I may be able to get something out of Wyn now."

Despite total lack of response when regressed to ages 22 and 20, I regressed him to age 18. He stirred and murmured. His eyelids fluttered.

"What do you see?" I asked eagerly. "What are you doing?"

"Wyn?" he exclaimed. His voice was clear and treble, the voice of a woman, as he called his own name. He clenched his fists, and moved his head from side to side. "Wyn,

I'm going to have a baby!"

"What!" I exploded, amazed.

"Wyn, what do you see?"

He opened his eyes.

"Why, I see you, Don," he said in his normal hearty voice. "What else should I see?"

With a suddenness I never have seen before or since, he had come out of the hypnotic state. I was afraid to delve any deeper. I didn't try hypnosis again.

During these first few years, Wyn and Summer gradually lost that identity of appearance which had made them look so much like twins the night I found them in the park. Wyn aged, not excessively but as any adult man would age in a few years. Summer, on the other hand, seemed to have found the secret of eternal youth. She grew ever more delicate and beautiful, and her fair skin seemed to take on a translucent glow.

I was a close friend of the couple, and I found that I was alone with Summer a good deal. Summer had shown an interest in schooling, too. She started in college with Wyn, then dropped back to high school, and finally fell back on studying at home. It wasn't that she wasn't bright. She seemed to recognize the facts she was studying almost at once, but tests and examinations were her downfall. She never could remember enough of the things she had studied to make a passing grade.

So I went to the house at 138 March Street often in the early evenings, to help Summer in her studies.

Their son was born about six years after they came to Allertown. It was a peculiar thing. There was no noticeable sign of pregnancy. Summer was sure she was pregnant, but Doctor Lodge scoffed at her, right up to the time of the birth.

"Sure, she has milk," he told Wyn and me, tugging at his white mustache and giving us a wise smile. "It's not unusual. She isn't carrying a child, though. It's a false pregnancy."

But the child was born. Then Doctor Lodge reversed himself and insisted she was carrying an unborn twin. Again he was wrong. Summer gradually but steadily recovered from the effects of the birth and regained her slender figure.

I still do not attempt to excuse Wyn for leaving his wife and newborn son. He was overwrought, it's true, but he should have taken them with him.

Instead, he came to me, his suitcase packed, when the child was about a month old. His face showed his agitation.

"Don, I'm leaving Summer," he said abruptly.

"Wyn! Why? What's happened?"

"I found out yesterday why she acts and talks so strangely. She told me. I couldn't sleep last night, and I've decided I must leave Allertown. Somewhere there may be people who can help me, but I can't find the help I need here."

"Was it so terrible?" I asked, trying to calm him. "What did she tell you, Wyn?"

He leaned forward intensely,



pointing a finger at me, and opened his mouth to speak. Then he shut it and sat back. He shook his head.

"No," he said. "Maybe it wouldn't affect you as it has me, but you couldn't feel comfortable about it. All I want from you, Don, is the promise that you'll take care of Summer and little Mark for me until I come back."

"You know I'll do that. They can move in here right away. But I think you're making a mistake, running away from whatever it is."

"I'm not running away," he replied. "I told you, I've got to have help."

That's all he would say. He left on the mid-afternoon train for Mayer City, and I went around to 138 March Street to help move his wife and child into my own home.

I didn't recall until three days later that Summer had predicted—or so Wyn had said—that when she told him why she acted as she did, he would leave her.

**I**F I CAN'T excuse Wyn for leaving his wife and child, I have even less excuse for becoming his wife's lover. The fact that the interlude may have been necessary to his very existence—and hers—is no justification, for I did not know that then. Nor do I know it certainly now.

But picture the plight of a man who has in his home a young and beautiful woman, the realization growing on him, day by day, that he has loved her for six years. And it was Summer's fault, as much as

my own. Perhaps more. Despite Wyn's words, I could not be sure that he would return to her, and certainly she must have known that he would. Despite this, she did more than merely encourage me.

I have wondered often about the philosophical implications of this fact. If Summer had not encouraged me, I wouldn't have been bold enough to make any advances on my own account . . . and where would that have left Summer?

On the other hand, it was the most natural thing in the world that Summer should encourage me. She knew.

Wyn had been away only about two months when Summer, rousing herself from a deeply pensive mood one night, sat down by my side on the sofa and snuggled up close to me. I couldn't bring myself to pull away from her, but I exclaimed:

"Summer, this isn't right. What about Wyn?"

"I don't understand this coolness toward me, Don," she said, laying her head on my shoulder. "People who love each other shouldn't act so aloof."

"I was thunderstruck at this admission. But I couldn't help saying what I said then.

"I do love you, Summer," I confessed, almost choking.

At once she arose and left me. I thought I had offended her, and I was almost relieved that I had. It was best that she should be discouraged about any ideas she might have about me.

But thirty minutes later she gave

me a smile that made me not so sure she was offended. And the incident seemed to increase, rather than dampen, the warmth of her attitude toward me.

It was unpardonable, with Wyn gone so short a time, but I had no strength to resist the inexorable attentions of a woman I loved. When she came to me in negligee late one night a week later, I became Summer's lover.

I have said it was partly Summer's fault, and the sequence of events would make it appear almost entirely her fault. This is not true; and I found out several years later why it is not true.

My inexcusable affair with Summer lasted for about a year, before the conversation occurred which caused me to terminate it abruptly. I had just entered the parlor, where Summer was curled in a big chair, reading.

"I don't see any reason for our not loving each other, if we really do, Don," she said petulantly. "Wyn says he's my husband, but I don't feel that he is. Why should I be tied by a marriage ceremony I don't know anything about yet?"

I could not answer, for I was looking at her through new eyes. Her tone of voice had been so like that of an indignant child that it awakened me to something I should have seen before.

How like an adolescent girl she was, really! The pale gold hair framed a young face. Despite the rondures of her figure, there was a looseness about the way her legs were attached to her pelvis, giving her frame that impression of hol-

lowness that is frequent among slender young virgins.

In the seven years I had known her, how could I ever have built up in my mind the picture of her as a mature woman?

When I thought about that sudden protestation of hers, made after we had lived as man and wife for a year, it seemed to me that it could only have arisen from remorse at such a situation. But it was neither this nor the fact that I was wronging her and Wyn that caused me to resolve then and there that never again would I so much as kiss her. It was that she was too young!

I did not waver in that resolve, from that time on.

But I thought a great deal about this matter: I had known Summer for seven years and she had been a woman when I first saw her. Yet her youthful appearance now made it impossible that she should have been adult then. Surely my memory did not play me wrong in picturing the Summer Storm I had seen that night in the park; indeed, the picture of her was burned indelibly on my mind. She must have, in the interim, become slighter, even smaller.

Oddly, this slenderizing process, once I noticed it, seemed reluctant to stop. The bathroom scales proved that she was losing weight slowly, but in her appearance the decline progressed much more rapidly. She began to get leggy and angular and she completely lost the once-voluptuous contours of her body, despite all the milk and starchy foods I could feed her. Nor was it that she



lost appetite. She ate voraciously.

At the same time, I became convinced she was losing her memory. Chance remarks dropped at odd times indicated that her recollection of Wyn, of the events before Mark's birth, of all her past life in Allertown, was extremely faulty; she never had shown signs of remembering any events before she came to Allertown.

As a matter of fact, it became increasingly apparent that she no longer accepted Mark as her son. The boy was growing out of babyhood with that speed which is so remarkable in children. She cared for him solicitously, but seemed to look on him as her little brother.

Of course, I took her to Doctor Lodge. He, in turn, went with us to consult doctors at Mayer City. He could find nothing wrong with Summer physically, nor could they.

They seemed to think we were faking. They heard my assurances, and those of Doctor Lodge, that Summer must be approaching the age of thirty, with obvious skepticism.

"There is nothing wrong with this girl except an unfortunate emotional aberration," one doctor told me flatly. "Physiologically she is a girl of about fourteen, and it is difficult for me to believe that her chronological age is any higher."

"As I told you before, she has a son nearly four years old," I said.

"I don't say that's impossible at her age, for it isn't," he retorted. "But this girl has never been a mother. She's a virgin."

I should have realized what all this meant. I believe there have

been such cases in medical history before. But I suppose I was too close to it. I didn't understand, even when Summer reposed childish confidence in me.

"I know what's going to happen, you know, because it's already happened to me," she said. She was a skinny girl now, with enormous blue eyes. "You know what's happened, because it's already happened to you. Isn't it funny?"

Fortunately, Wyn returned not long after that. Wyn had the answer to the questions that had been puzzling me.

**W**YN GAVE no warning of his return. He just walked into the house one afternoon, carrying a suitcase and smoking a pipe.

When I found Wyn and Summer in the park, they had appeared to be twins. During Wyn's absence his hair had begun to gray—prematurely, I'm sure—and now he looked like Summer's father. The change in her must have been even more noticeable to him than it was to me, because he had been separated from her during its most remarkable development. But he showed no surprise at it.

"I knew what the trouble was before I left," he said soberly. "You see, as Summer's husband I was much closer to her than you could be, even since she and the boy have been living with you."

I could feel my ears turning red. I asked hurriedly:

"What is wrong with Summer, Wyn?"

"She lives backwards," he said.

"Time is reversed for her. It isn't only a physiological reversal. Everything goes backwards in time for her. The future is the past to Summer, and the past is the unknown future. She remembers the future, Don—she remembers it, because she has seen it happen."

"That's impossible!" I exclaimed. "How can she? It hasn't happened yet!"

"To her it has," he replied. "It may upset your conception of the future as a fluid thing of limitless possibilities, but Summer's experience is pretty good evidence that it is as frozen and stable as the past. As the Orientals say, what is to be will be."

I thought about that, and I thought I detected a flaw.

"Oh, no!" I said. "Wait a minute here, Wyn. If she can't remember the past even a minute ahead, you couldn't even talk with her. She'd remember what you were going to say, instead of what you had said. Not only that, she'd talk backward! You'd never be able to understand her."

"People are adaptable," he replied. "She evidently learned to talk backward—to her; correctly, to us. People learn to talk so others can understand them. And as for conversation, do you remember Summer ever answering a question directly?"

I started to say I did, for it seemed that I did. But a moment's reflection changed my mind. Not a direct question; and her participation in a conversation always had been a jumpy and disturbing thing.

"But we can talk with Summer," I protested. "For years we've been able to understand each other."

"Like writing letters that cross in the mails," he said. "And I think people do have some knowledge of the immediate future, even you and I. Summer would develop that faculty more than the average person."

Certainly. No wonder she had been so affectionate to me that it had been impossible for me to resist her. To her, at that time, we had already been lovers. By the same token, my own knowledge when the affair was concluded that we had been lovers must have created in me an attitude that was a strong incentive for her to yield to me at the end of our relationship—the beginning, to her.

What a way to live! Always trying to guess, from the conversation of those around her, what (to her) was going to happen, so she could react intelligently.

"But," I protested, still unwilling to accept it, "if the past is the future to her, her actions could affect the past."

"Exactly," he said. "I told you, this means you have to accept the principle that the past is just as malleable as the future, and the future is no more malleable than the past."

Wyn had known all this before he left. He had gone, not just to avoid seeing his wife revert to childhood before his eyes, but to delve into studies on the nature of time itself. Where he had been, how he had supported himself I didn't



know. I still don't know.

Summer, her age now about thirteen, was old enough to understand that she was Wyn's wife, but he did not resume his position as husband to her. Instead, he acted toward her and Mark both as a father. Me? I suppose I was something in the nature of a benevolent uncle now.

As a matter of fact, Wyn plunged so deeply into work that the task devolved upon me to be both father and mother to Summer and her child. Mark, developing apace into a vigorous young specimen, looked like both his parents—since their features were so much alike, he could not be said to resemble one more than the other.

Wyn did not return with his family to the house at 138 March Street. It had long been occupied by someone else. He moved in with us and, with my tacit consent, made my home both his home and the headquarters for his work.

His work actually was double. He got a good job, this time as engineer at the Allertown Mill Industries. During all his spare time, he worked at converting my precious den and my basement into something completely beyond my understanding.

There are some people who accept misfortune and live with it—or die with it. Others battle it angrily to the bitter end, even when there is no evidence that anyone ever conquered their particular misfortune before. Admittedly, there was little precedent for Summer's case; and this made the prognosis even less optimistic. Still, Wyn

was constitutionally the latter type of person.

"I don't know how much longer she lived in the past before you found us," he told me. "Nothing I could do has helped my amnesia for that period. She may have lived to a ripe old age, for all I know.

"But we know that she has only a few years to live, the way she is now—perhaps twelve or thirteen. That's her physical age, and she is living backwards toward babyhood."

"What will she do?" I asked curiously. "Just fade away?"

"She has to be born," he answered solemnly. "My guess is that, a few years in the future, there will occur the most unique birth ever known to man—a birth in reverse. Some couple, somewhere—perhaps someone we know here in Allertown—will live through the experience of the daughter they never knew reentering the mother's womb and retracing her steps through the embryo stage to the moment of conception."

"Fantastic!" I exclaimed.

"It must be true," he insisted. "It has to be true, unless she reversed . . . will reverse . . . her direction in time after birth. In that case, perhaps some baby girl here even now is Summer, living coexistently with her reversed self."

"If you're going to reverse her direction in time again and make her live normally," I said, for he already had told me this was his aim, "I don't see how you can prevent a paradox. She has already lived in the past as an adult woman. If you reverse her existence at this

stage, then she can't be born, because she'd be living from her present age on, both forward and backward in time."

He shook his head.

"I don't know," he said. "Perhaps it can't be done. Perhaps it would involve a parallel time stream, if there is such a thing. All I know is that I must try. If I can, she might still consent to be my wife later, if the difference in our ages isn't too great. That would be up to her."

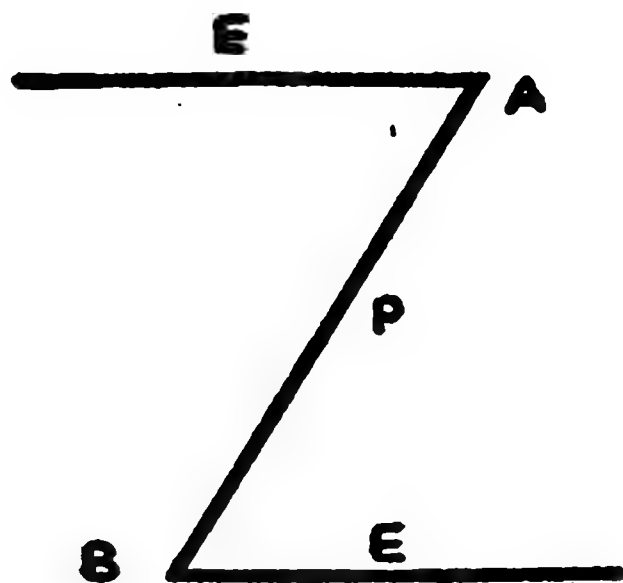
"I don't see how you even know where to start on such a project," I confessed.

"The chances are slim," he admitted, "but I have some hope. The only actual time reversal we know, scientifically, is at the sub-atomic level. The theory was advanced by Feynman that annihilation of an electron-positron pair upon contact might be, not actual annihilation, but a 'time reversal' of the electron. The emission of a photon of energy, in such cases, is powerful enough to cause a recoil in time, and the positron is merely the electron traveling backward through time after the energy explosion."

I looked extremely blank.

"Look," said Wyn, taking up a pencil. He drew a big "Z" on a piece of scrap paper, labelling the two arms "E" and the connecting line "P". The angles he marked "A" and "B:"

"The flow of Time is from left to right," he explained. "At left is the past, at right the future. This electron, E, is moving normally along at the top of the diagram



when it runs into an energy explosion at A. It reverses itself, going back through time as the positron, P, until it hits another energy explosion at B. Then it is reversed again into the right time direction, continuing as the electron E, at the bottom. You follow the line, as the pencil point does in making the Z, and it's a single body.

"But," and he drew a vertical line through the Z, "we move always forward in time. To us, the energy explosion at B happens before the one at A. Suddenly at B, a positron and an electron are created out of nothing. The electron at the top apparently has nothing to do with either of them. But the positron moves along and collides with it at A, leaving nothing there again—except, once more, an apparently unrelated electron, the one at the bottom of the diagram."

"But you're saying the same thing can exist in three places at once," I objected.

"Exactly, but in one of those places, it's traveling backward in time. So, if Summer's time reversal



occurred or will occur after birth, she may be existing somewhere else, as a younger girl, right now; besides being here in the house with us."

"Your example is, as you say, at the atomic level," I said. "How can you transfer that into terms of human beings?"

"The only thing I know to do," he said, is to create an energy explosion which I know won't hurt Summer physically, but may reverse her back to a normal direction. It would be like the energy explosion that meets the positron at B and forces it to continue existence as an electron."

"It appears to me," I said slowly, trying to grasp the concept, "that your explosion at B would have to have happened already if it were going to happen at all."

The amazing thing about it is that Wyn, the man who had studied all this thoroughly, apparently didn't understand what I meant. It just goes to show that he must have been right, when he said the future is as fixed as the past.

**I**T TOOK WYN four years to get his equipment ready for a test. He explained to me what it was supposed to do, but I never did get more than a general idea of the principle involved. The heart of the thing was a heavily wired chamber in the basement.

"The human body can take a lot of electricity, if it's administered in the right way," he said. "If it's administered in the wrong way, you've electrocuted somebody."

"I still don't know whether I've probed the secrets of the space-time fabric deeply enough to make this work, but I think it will reverse the charge of every atomic particle in the body of whatever is in that cubicle. I'm going to put a cat in it, as our first time-traveler."

"We may turn up with a cat and an anti-cat, the latter traveling backward in time. We may end with no cat at all. If so, maybe we've created an anti-cat in the past or maybe we've just electrocuted a cat."

"I don't see how you expect to interpret your results," I commented drily.

"If there's no cat, I won't risk it," he answered. "If we double our cats, I think we're on the way to something that may help Summer."

We picked our way through the mess of wiring and went upstairs. He had torn my bookcases out of one wall of the den and installed a control board with a television screen where the fireplace had been.

"The experiment will be controlled from here," he said. "The energies that are going to run around all over the basement would make it pretty dangerous for anyone down there. I'm sorry you can't watch, but somebody's got to keep the children away from here."

When he said "children," he meant Summer and Mark. Summer now looked as much a twin to her nine-year-old son as she had looked to her husband when I first saw them. At the last two Christmases, we had bought toys for both of them, and she played

happily with Mark. She called Wyn "daddy" and me "Uncle Don," just as Mark did.

Making them look even more like twins as we entered the living room on the day of Wyn's experiment was the fact that they were dressed alike. She wore a pair of Mark's overalls, and both had on T-shirts.

At the moment, the two were trying to put doll clothes on Thomas, the stray yellow cat Wyn had picked up for his experiment. We had had Thomas about six months now. Wyn and I had dubbed the animal "Tom," unaware of its sex—it had borne kittens during its stay with us—but the children thought the cat too dignified for the nickname. It was, except when they were trying out their various original ideas on it.

"Thomas is our first heroine—or martyr," said Wyn, and swept the cat up from the floor. Over the protests of the children, he stripped off the doll clothing. "You youngsters go out on the side lawn and play. Uncle Don will take care of you for a while."

Caring for the children had been my chore for so long I was accustomed to the peculiarities involved. Mark was as much a problem as any normal, active boy—no more. But Summer's reverse living, her reverse memory, made her even more difficult to deal with as she reverted to childish habits and attitudes.

For some weeks now, she had indulged in the fantasy that she was Mark and Mark was she, a game Mark rebelled at strenuously. At the same time, her manner of

speaking had become so confused and tangled that it was often incoherent. If Wyn failed in his experiment, the next nine years threatened to be trying indeed.

The children left the house with me docilely enough, but as soon as we reached the lawn Mark burst into tears.

"What's the matter with you, young fellow?" I asked in surprise.

"What's Daddy going to do to Thomas?" he demanded. "Daddy's going to hurt Thomas!"

"Don't worry, Thomas isn't going to be hurt," I reassured him, aware that I might not be telling the truth.

The boy looked at me straight.

"I know what a martyr is," he said indignantly, his sobs subsiding. "I studied Joan of Arc in school."

"Daddy . . . Thomas in big furnace put," Summer informed us in her labored fashion. "Thomas all burnt up was going to. Him . . . but I him saved. Saved him, Summer and I."

"Neither one of you is going to do anything about Thomas right now," I said brusquely, recognizing Summer's use of the past tense as an expression of intention. "When Daddy's through with Thomas, you may play with him again."

Mark subsided, but he retained on his face a rebellious expression which had by now become familiar to me. Summer, although she said nothing for a few moments, became more excited. She alternately flushed and paled, breathing hard, until I began to fear she was ill.

Now a deep, powerful hum arose from the house. Wyn had switched



on the power and was ready for his experiment.

It was a tremendous volume of sound, a physical thing that throbbed through the ground under our feet and caused the leaves of the trees to tremble as in a breeze. An electric tension filled the air and seemed to intensify Summer's agitation. Her eyes dilated in fright and her teeth began to chatter.

"Away got I but!" she cried suddenly in a shrill voice. "Up blew it before away ran he and Thomas saved I! Me with up blew it and fire of full furnace big a was it! Furnace a in Thomas had they!"

"Here, child!" I shouted above the increasing roar of the generators. "You're hysterical. Nothing's going to happen to Thomas."

She quieted abruptly, glaring at Mark in affright. He stared back, equally alarmed.

"He isn't, Summer he's?" she asked me plaintively. "Boy a be Summer could how? Mark I'm know I."

I didn't understand this at all, especially when Summer began feeling her arms and legs and inspecting herself all over, carefully.

The sound of the machinery in the basement reached a shrieking crescendo that must have put the teeth of everyone in the neighborhood on edge. Mark came to life. His eyes shining fiercely, he grasped Summer by the arm.

"Are they going to hurt Thomas?" he demanded intently. "Are they, Summer?"

She looked at me, not the boy, and suddenly she was calm as

though in the grip of profound shock. I could hardly hear her quiet, childish voice through the noise from the basement.

"Where . . . know . . . don't," she began haltingly. "Gone . . . Summer's but. Furnace the in him had they. Thomas saved I."

Her voice trailed to a gurgle and then she began to chant, "Burn Thomas burn Thomas burn Thomas . . ."

The boy suddenly broke from her and began to run for the house.

And, BACKWARD, she ran after him.

Caught by surprise, it was a moment before I could gather my wits and follow, shouting at them. They had disappeared around the corner of the house, and I rounded it in time to see them tug open the outside basement door and vanish inside. An eerie blue light flickered from the open door.

Trying to run too fast, I tripped over the garden hose and fell. I got to my feet, momentarily dazed.

The explosion knocked me flat on my back, blinded by the flash that burst from the basement windows and through the cracking walls.

The blast tilted the den up from the bottom. Its metal and concrete floor, reinforced for the experiment, buckled but remained unbroken, like a giant slide. Down that slide, through the smashed walls, Wyn catapulted, to fall unhurt into the grass.

But the rest of the house crumpled in on the basement and caught fire. Under the blazing piles of ruins, I could only surmise, were

trapped the children, both mother and son.

I wept frantically. At my age, I must have been a pitiful spectacle. Neighbors put their arms around my shoulders, tried to comfort me.

In contrast, Wyn was remarkably calm as he reported to Gus Adams.

"Every precaution was taken, Mr. Adams," he said, staring morosely into the smoking embers of the house. "Both of them ran into the basement just before the explosion. There was nothing anyone could do after that."

"Too bad, Mr. Storm, to lose your wife and son all at once," said Gus sympathetically, writing in his report book. We had kept Summer pretty well concealed behind the high board fence in recent years, so few people were aware of her retrogression. "If there's anything I can do to help, let me know."

I upbraided Wyn for his apparent callousness when we got to a room at the City Hotel.

"You may be right," he said. "But, first, I want to know something."

He had me relate to him everything that had transpired with the children after we left the house. He made me repeat several points and questioned me closely. He was interested particularly in what Summer had said, how she had said it and how she had acted. The whole thing was so clearly impressed on my mind, as it is today, that I'm sure I made few errors.

"Well," he said, when I had finished, "we'll never see either of them again, but I think I can say

definitely they weren't killed in that explosion."

"I don't see how you can say that!" I exclaimed.

"You remember what I told you—that if Summer's existence had been reversed in time after she was born, she was existing somewhere else at the same time? Living normally as a younger child in one place, and as we knew her in reverse?"

I did remember it.

"Well, she was. But we thought she'd be a girl in both instances. When her time direction was reversed, so was her sex. *Mark and Summer were the same person!*"

I gasped. Wyn took a piece of hotel stationery from the rickety desk and scratched a zigzag on it with his pen. It was a figure like the one he had drawn in the library of our home, except that the top arm of this Z was very short.

He labelled the top arm of the Z "Mark," and the diagonal "Summer."

"My mistake was that I thought my energy explosion would be at B, throwing Summer back into a normal time direction. Instead, it was at A, reversing the time direction of Mark's existence: and the reversed Mark was Summer."

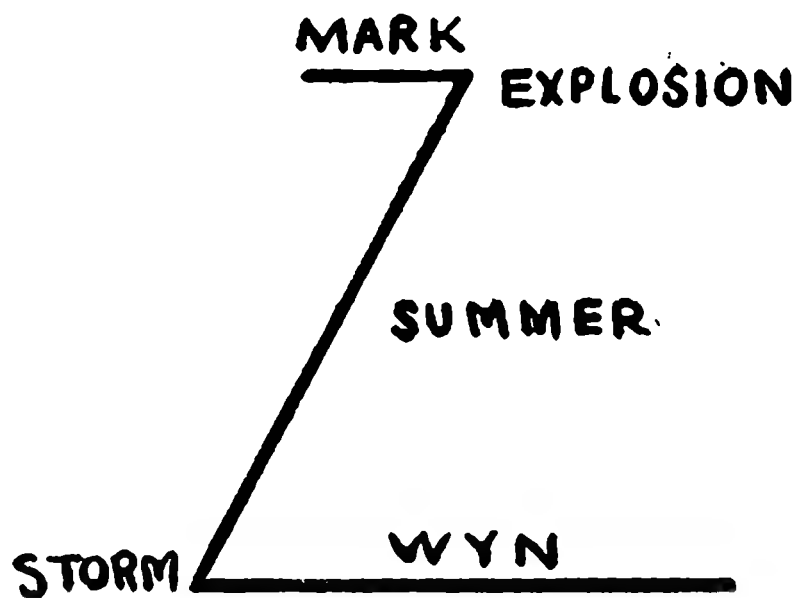
"But Mark was Summer's son." I exclaimed.

"Curious, isn't it?" he agreed, smiling strangely. "She gave birth to herself, like the phoenix. Nor is that all. She conceived herself!"

With a firm hand, he wrote "Wyn" above the bottom arm of the Z!

The diagram looked like this:





"The re-reversal!" His blue eyes were a little self conscious as they looked at me now. "Don, I was born Mark Storm. This explosion today reversed my time direction and I became Summer Storm, to give birth to myself nine years ago. And in a terrific burst of natural energy that you yourself saw, a crucible so fiery that it could wrench the very inner fabric and physical form of the body, the time flow for me was twisted back to its proper direction that night in the park and I became myself—to father myself six years later!

"I was my mother. I am my own father and my own son!"

There it is. Wyn believes he sprang from nothingness, from himself. Amid the wreckage of the laws of cause and effect that this whole thing involves, it's possible, I suppose. But a couple of details still bother me, details I haven't

mentioned to Wyn.

Oh, it isn't the coincidences. If the future is fixed as is the past, they wouldn't necessarily be coincidences: things like Summer—in the reversed time in which she lived—stripping off her clothes, donning Gus Adams' raincoat over her nakedness and going with us out to the park, to that rendezvous with the lightning and Wyn.

One of the details I can't take is that it's hard to believe that, even in such strange twistings and turnings of time, any creature can initiate itself and, in effect, spring from nothing—though Wyn says it's done at the sub-atomic level in simple terms of conversion of energy to matter. But how about the fact that such a complicated creature as man is built by the action of the genes and chromosomes?

The other is that year that I was Summer's lover. If she was living backward biologically, wouldn't that apply, too, to the growth of an unborn child while it was still part of her. And Wyn left Allertown right after Mark's birth.

I've heard of virgin mothers. I'd rather believe in a "virgin father" than human creation from nothingness.

I once had hair, and it was blond. My eyes are blue. I look in the mirror, and then I look at Wyn lounging at ease behind his newspaper.

My son? My motherless son?

• • •

## What Is Your Science I. Q.?

**T**RY answering the quiz below to find out how science-wise you are. Score 5 points for each correct answer; 75 is good, 80 very good, over 85 makes you a whizz. Answers on page 99.

1. According to the theory of relativity, mass and \_\_\_\_\_ are equal and interchangeable.
2. On the basis of the chemical activity of metals, which metal is the most active?
3. The critical temperature of oxygen is \_\_\_\_\_ centigrade.
4. What do we call a compound which consists of two elements only?
5. Long waves are radio waves with frequencies less than \_\_\_\_\_ kilocycles.
6. What is the chief component of protoplasm?
7. Carbon, hydrogen, oxygen and \_\_\_\_\_ are always present in proteins.
8. \_\_\_\_\_ light vibrates on only one plane.
9. What is the name of the chemical process in which a solid substance changes directly to vapor without going through a liquid state?
10. Ozone is \_\_\_\_\_ times heavier than oxygen by weight.
11. What have quaternion, tensor and vector in common?
12. Which radioactive rays cannot have their direction changed by a magnetic field?
13. Pressure in the ocean increases one atmosphere for \_\_\_\_\_ feet of depth.
14. What is the name given to the process of joining together a number of molecules of the same kind to form a single larger molecule?
15. Inertia \_\_\_\_\_ as velocity approaches the speed of light.
16. A nuclear particle intermediate between an electron and a proton is called a \_\_\_\_\_.
17. A siderite is a meteorite composed entirely of \_\_\_\_\_.
18. Heat energy is liberated by the decomposition of radium at a rate of about \_\_\_\_\_ calories per hour for each gram.
19. Which radioactive rays have the lowest velocity?
20. The photic zone of the ocean where there is sufficient light for photosynthesis of sea plants exists only to a depth of about \_\_\_\_\_ feet.





*Wellesley was ordered to check on deviants  
or mutants. But the evidence was often  
subtle, and he knew he couldn't afford to  
take a chance . . .*

## **the scamperers**

**BY CHARLES A. STEARNS**

**T**HE EARTHMAN, Wellesley, came to Ophir in the season of aphelion, when the binary suns of that remote planet were cold serpent's eyes, dimly seen above the chill mists that shrouded its fern forests and craggy, young mountains, its silent oceans and magnificent organ pipe cities of legend.

From space one might look down upon the vista of these latter prominences and imagine a vast, exotic civilization spread over the face of the equinoctial swamps, but Wellesley knew that the giant towers were mere calcareous shells, hollow as the expectations they had inspired in the first



planeteers to arrive here two hundred years ago—they were the work, in fact, of small, mindless crustaceans.

His own destination, a small, shabby, corporate plantation, was less impressive in appearance. Its name was Aidennsport. It consisted of a hundred buildings, including a commissary and a hulking communal storehouse. The primordial jungle was all about it.

To Wellesley, yellow-cheeked from too many years in space, cynical from the paucity of human values in his life, Aidennsport was the despised prototype of colonial stagnation about the galactic rim. For he was a dour, lanky pessimist among that immense, invaluable, but nondescript order of men, the Rift constabulary, whose beat is the emptiness between the stars, and which enforces the name of law throughout the vast reaches of the firmament beyond Sol's sprawling civilization.

Wellesley's ship was accustomed to describe an elliptical orbit which brought it near the system containing Ophir once every seventh sidereal month. It never stopped. Its course was as inexorable as a comet's; nevertheless, he had lately received the commission of an errand here for the omnipotent Department of Genetics and Genealogical Records.

And so he was forced to make landfall in a rocket tender in a meadow by Aidennsport, while the ground quaked dangerously beneath the settling blasts of the tiny vessel. He located the single course of the village without difficulty.

Half a dozen ragged children were playing there, and stopped to stare. Women peered at his dark uniform from behind curtains in the stained, milk-colored bungalows. Quaintly dressed men, tending the auto-pickers in nearby fields of drug-plant, shaded their eyes to gaze with silent menace, though there was no sun.

He was able to find the house of the agent by the frayed company flag flying over it. To the right of it was the warehouse where the annual crop of senna-like leaves of the drug-plant were stored for drying. This was Aidennsport's meagre industry. Beyond lay the swamp, and far across its desolate surface, the multi-colored towers of the pipes fingered the sky, aloof and sinister in aspect.

A boy of no more than ten, dark eyed but with that startling, burnished-gold complexion so often found in the systems of twin or multiple suns, sat upon the steps before the cottage. He was playing with a furry animal not unlike a Martian ferrax, which sprang up, scarlet-eyed and bristling, at the sight of Wellesley.

"Here, boy," said Wellesley, who neither liked nor trusted children. "Is this the house of Amos Sealilly, the factor of Aidennsport?"

"Sure. That's my pa. Say, are you a spaceman?"

"Never mind that. Where is your father?"

"In the warehouse," the boy said. "I'll show you how to get inside. My name's Joseph, and I have a spaceship in the back yard. I call it the *Stygia*, after the pirate ship of

the twenty-eighth century. Do you want to see my crew?"

"Later, perhaps," said Wellesley dryly. "Come along, now."

They found tall, aluminum doors which slid back at the wave of a hand, and entered into a vastness of cool gloom, permeated by a spicelike odor of curing leaves.

A figure emerged from the drying racks at the other end of the warehouse.

"Is that you, Joseph?"

"That's pa," Joseph said.

"Damn you, Joseph!"

"I guess he's drunk," Joseph said.

Wellesley advanced. "I am Lieutenant Wellesley of the Rift police," he said.

Amos Sealilly was a great, craggy ruin of a man, with seamed face and heavy grey brows that shadowed intense blue eyes. Eyes that glared just now. "What do you want here?" he bellowed.

"My mission is to perform an ethnic census for the Bureau of Genetics. I shall require your co-operation."

"There are three hundred and twelve people in Aidennsport," Sealilly said. "Write that down and get out. Go back to your space castle and leave us alone."

Wellesley sighed. "I am afraid that an ethnic census is never quite that simple. However, since you are required by law to assist me, you may as well know the truth. This community is suspected of inbreeding."

Inbreeding is not, of course, a crime, except against nature. Nor is it ordinarily dangerous. Com-

bined, however, with the environmental influences of certain Rim planets, it may cause genuine, true-breeding mutations within the species, such as monsters, impressiono-telepaths, psycho-variants and other undesirables which, if allowed to multiply for a few generations, might become dominant. They are located and deported to A-type worlds.

It had been an anonymous tip that had brought Wellesley to Ophir, but in all the inhabited universe, he knew, the Bureau was the sole guardian of the classic blood strain, and it took no chances.

"What's 'inbreeding,' pa?" said Joseph, tugging solemnly at his father's sleeve.

"A naughty word of the middle ages," said Sealilly thickly. "A bugaboo of the mighty sky-chiefs. If we do not co-operate we bring their lightning upon our heads. Yet, what must we do?"

Wellesley did not smile. "You must inform the colonists that I wish to interview each member of every family and clan briefly, beginning tomorrow morning at seven. I do not mind in the least being *persona non grata*, but if any person fails to show up, or if there is any trouble, you will be held personally responsible. Moreover, I do not think you are as drunk as you would like me to believe."

Amos Sealilly bowed, took a flask from his pocket and drained it.

"One other thing. I shall need a place to sleep."

Sealilly smiled. "There is an abandoned native daub-hut behind my house. You are welcome to it."

"It will serve," answered Wellesley coldly. "There are natives in the area then?"

"Yes. Bipedes, though not mammalian, you will find. In fact, quite low in the scale of evolution. They are nearsighted and harmless by day, but you will be wise to keep to your hut after dark."

"I can take care of myself."

"I'll show you the place," Joseph offered. "I can carry your space kit, too."

"Over there is my ship," Joseph said, pointing. "We are making ready to put out for Arcturus."

There was a bright constancy about Joseph that clutched at the heart. Not Lieutenant Wellesley's heart, of course, he reminded himself. The "ship" was indeed the rusty, peaked foretank from some ancient freighter, complete with hatch. It was set on end at the edge of the swamp. To any boy it would have been a starship.

It was already dusk. The Ophirian daub-hut was not so bad as he expected. It was massive. The orifice had been enlarged into a door. Windows had been added. The only furnishing was the rude couch. It was a measure of Sealilly's hostility.

Joseph spied the ferrax-thing scuttling across the lawn and dived at it. The two of them rolled over and over, Joseph laughing, the animal growling and spitting.

Wellesley went in, closed the door and removed his official log from its case. The next two hours were spent in a carefully worded account—for space logs are part of

the permanent records of the Galactic Court, among others—of the events of the day, including a bleak and perhaps prejudiced account of the character of Aidennsport and of Amos Sealilly.

Afterwards he lay back on the couch and smoked several cigarettes in lieu of the food capsules that he did not crave. He was far from imaginative; nevertheless, the character of the place crept at last into his consciousness. He was used to cramped, machinery-filled spaces and the sterile smells of hot metal and ozone; here was an aura of decaying organic matter—and of something else. A faint, but unmistakable reptilian odor, attesting to the nature of past inhabitants.

The vault of darkness was absolute, unabated by the dim patches of light that were the fenestrations above where he lay.

And presently someone very stealthily opened the door and entered.

Only for an instant was the figure silhouetted there before the door closed and darkness reigned supreme once more. Yet that instant was long enough to tell him that it had been a woman. And though her features had not been discernible, he had gotten the impression of exceptional beauty.

For a time there was no movement; no sound save her faint breathing. "Who's there?" he said. "What do you want?"

And then she came nearer and stood so close to him that the perfume of her breath was upon his face. Suddenly he groped, caught



her arm and pulled her to him. The warmth of her body was against him. He felt her tremble. But she did not try to pull away.

He laughed. "Perhaps I may revise my opinion of Ophir," he said.

"No light!" she whispered. Her voice was low and vibrant.

"Why not?"

"I must not be seen here. But I had to warn you. It would not have been right not to warn you about Aidennsport."

"What of Aidennsport?"

"It is a dreadful—an evil place. There are forces here which you would not understand. Leave at once while you are still able to go!"

"You forget that I am a policeman. To leave without completing the census would be dereliction. I remind you that the Empire is inexorable in these things. And who are you, anyway?"

She did not answer, but drew away so quickly that he could not grasp her. In a moment, from across the room her voice came. It was less intimate, even matter-of-fact.

"If you will not leave," she said, "lock this door behind me and do not, as you value your life, step outside this hut until daylight."

She was suddenly gone and he was alone in mystification and wonder, and a dull, stirring anger that he could not account for.

But he could make nothing of it and after a time he put the incident resolutely out of his mind and tried to sleep. This was not accomplished at once. Curious sounds had begun to filter in through the fenestrations. Some were the night sounds of birds or insects. Other sounds,

faint hissings and gruntings, were unidentifiable. Once he thought he heard the slap-slap of bare feet running past his door.

At last he was forced to employ a mild form of auto-suggestion, learned long ago and employed often during those first lonely years in space. He slept.

But once, in the early hours of morning, he was awakened by a tumult. There was much loud hissing and the scampering of many feet outside the daub-hut, as though some intricate and riotous game might be in progress out there, the nature of the game—or for that matter, the players—unguessed at. But he was half asleep, and thought little of it until he awoke again at daybreak.

**T**HE AUTHORITY of the Rift constabulary is acknowledged universally, though sometimes grudgingly. The men of Aidennsport, therefore, sullenly reported to Wellesley, and brought their families.

It is a singular thing, but almost every birth and death in the galaxy is recorded by the Empire. The laws concerning this are old and stringently enforced. Therefore Wellesley already had a fairly accurate estimate of the true population of Aidennsport, and it came close to the number offered by Amos Sealilly.

Following the seldom-used manual of the Bureau, he received vital statistics, made micro-photos and dermal prints, and endeavored a minute scrutiny of every man,

woman and child that passed before him. He was finished by mid-afternoon.

Evidence of ingeneration he found in plenty, in the marked similarity of features among certain families, but nothing which could be called deviation or mutation. Not even polydactylism, which is one of the earlier manifestations. Still, he knew that the physical impress of the mutant was often subtle, and that he might have overlooked something.

In none of the females could he identify the girl of last evening. If she had failed to appear—was hiding in the village—might not others be hiding too?

The only recourse was to study the natives and try again. In many cases deviation among *homo sapiens*, who had colonized the Rim planets, simulated the natural characteristics of native races. The relationship between mutation and environment was obvious.

The chief magistrate, factor, or leader of any colony with an official grant was required by law to assist and obey any member of the Rift police in the capacity of a deputy.

Wellesley called Amos Sealilly, who had been avoiding him all day. "Is there a tribe of the dominant native species near here?" he asked.

Sealilly was still drinking, and saluted stiffly. "In the swamp, Lieutenant."

"Guide me there."

"You can go to hell," Sealilly said, "and I will guide you *there*."

"You refuse?"

"I do. It's too dangerous for a spaceman. Full of bog-fever.

You've no natural resistance. Besides, I'm busy inventorying."

"Very well," Wellesley said, struggling to hold his temper in check, "I'll find them alone."

"In which case," said Sealilly, "you will not come back, and that will be an irreparable loss to the Empire."

Wellesley left him and made his way toward the swamp. Joseph was playing near his ship, and calling orders to an imaginary crew inside. When he saw Wellesley he came running.

"We were just blasting off for Earth," he said, "but I heard you and Pa talking. If you want to go in the swamp, I'll show you the way. I've been there lots. The Ophirians hang out on the shores of the black lake, where the organ pipes are." He pointed to the towering pinnacles in the distance. "They catch shellfish there."

"You know them?"

"Everybody has seen them. They are kind of green and slimy, but they won't hurt you. They can't see in the day-time. Only smell. Anyway, I'm not afraid of them."

"Done," said Wellesley, "and in return for the favor I promise to put in a word for you at the nearest spaceman's hiring hall."

"You won't have to do that," Joseph said. "My crew and I are going to be space pirates."

Then Wellesley laughed aloud, and felt better afterward than he had felt in many a long month.

The trail through the swamp was damp and primitive. Everywhere the cycads, giant ferns and reeds

overhung the path. There were great, blood-colored flowers which snapped at twigs that Joseph put into their corollas.

Meanwhile, the ferrax-beast labored behind them, following with its proboscis to the ground, until the boy, taking pity, picked it up and carried it. Wellesley asked its name.

"His name is Omur," Joseph said. "I caught him in the mountains when he was little and raised him. But now Omur is too fat to walk."

Eventually they emerged into an open swale, with a stretch of dark water before them. On the other side of the slough lay a sight well worth a day's march. Dozens of giant pipes, some two hundred feet or more in height, stood braced against the sky, pastel blue, pink, and gold in the mists.

But Wellesley was less interested in these than the creatures which moved like grubs about their base, at the edge of the lake—squat, grotesque forms that waded the shallow water, scavenging for shellfish and crustaceans, and took no notice of the humans.

On coming nearer, however, Wellesley observed a very curious fact. The Ophirians were of two varieties. The ones in the mud were gross and toadlike in appearance. Whenever they found an especial delicacy they would run, with their webbed feet making smacking sounds in the shoal water, and lay it at the feet of an Ophirian who sat in a wallow of peat moss and mud, and did nothing. He was a much smaller variety, but, Welles-

ley noted, with considerably greater frontal development to his skull. Also his thin body bore a long, green tail. The tails of the workers were vestigial.

"The chief?" Wellesley asked.

"No," Joseph said. "It's something else."

"Are they a clan, then, or brothers?"

"Closer than brothers," Joseph said, scratching Omur's head.

"I have it—*avatars*! I should have guessed!" He had heard of this odd genetic arrangement before, but never witnessed it. In such cases a dozen or more individuals were born of a single nucleus in a single egg. Of these, one developed more fully than the rest and controlled his mentally-stunted avatars with a mental vinculum far more fundamental and powerful than mere telepathic union. On the other hand, the avatars were his hands and feet, and had larger bodies.

The large-headed Ophirian sat in his wallow and accepted the food offered him with long, leathery fingers. He crunched noisily. Once he turned to stare at them briefly with great, owl eyes. Eleven avatars turned simultaneously to stare. It was like looking into a multiple mirror.

"They sense us," Joseph said, "but they can't see us. Come on."

From nearby, the pipes were even more awe-inspiring. Besides the massive old towers there were smaller ones in every stage of development. It was incredible to think that they were actually growing; pushing up out of the lake.



In one of them a jagged hole, five or six feet in circumference, had been broken at the base. Joseph, with his furry pet under his arm, went to investigate it.

A moment later there came a shout from him that brought Wellesley running. "What's the matter?"

"Omur went up the pipe," Joseph said, "but *you* can get him." There were tears in his eyes. Beseeching tears.

"We'll see," said Lieutenant Wellesley brusquely. He put his head inside the pipe. A tiny circle of light far above him showed at what an awesome height was the upper rim. The inner surface, however, was very rough, and there were plenty of holds for hands and feet. He could not see Omur; only the circle of light, and around it, blackness. Suppose the damned thing bit him when he tried to rescue it! A faint, moaning sound emanated from the vast funnel, doubtless from the updraft.

He found a place for his foot; drew himself up a step; then another. Joseph's white face was staring up at him from below. *And suddenly the circle of light was blotted out!*

**T**HERE WAS a rustling sound like dry leaves in the wind, and a sudden, sharp pain in his temple. Then another at the base of his neck. He fell back and sprang out into the open. The aperture, in an instant, was full of small, needle-like fluttering things.

"Stingbats!" Joseph screamed.

"Run!"

Wellesley fled after him, but he was already beginning to feel a sick, draining weakness. Within a few steps his legs had become rubbery. Joseph was out of sight. Perhaps gone for help. But then Joseph did not know that he had been stung.

After a while he came to a small, black pond in his path. He had gotten off the trail. He sank down, there, beneath a fern tree, cursing.

He was sure that he was dying, for a numbness, an absence of feeling, had stolen up from his feet and possessed his legs. He essayed a bitter smile. He was more chagrined than afraid, for this was an ignominious way to pass, here in a nameless swamp, alone, not even beset by one worthy enemy. And perhaps when he thought he smiled, he was merely baring his teeth in that manner that certain neurotoxins leave their corpses always . . .

Someone was shaking him brutally and insistently, and someone was repeating his name, over and over. He knew the voice at once, for it had been lately in his thoughts.

"*Get up!*" she said.

"I can't."

"You must—or die. Get up now and try to walk. Come, I'll help you."

She did help him, and with her support he managed to get to his knees and then to his feet. He walked.

Afterward, there was a kind of delirium. He remembered bitter tasting capsules which she made

him swallow later on in the daub-hut, but he did not recall having arrived there. He only knew that it was pleasant to have her cool hands on his forehead. The hands seemed to fill a vast, fundamental need. And this was out-of-character for Lieutenant Wellesley.

After a while he was lucid, and was surprised to note that, as at their other meeting, the darkness was absolute. "It's night," he said. "Very dark."

"Yes."

"Give me your hand."

He held it for a time in both his own. It was a firm, capable hand with long, tapering fingers. "Believe that I am grateful," Wellesley said, "even though I must be grateful to a benefactor whom I have yet to see for the first time. Let me look at you. I cannot command you to tell me who you are, as an officer of the Rift constabulary, but I ask it as your friend."

"You ask the impossible," she said. "The worst is over for you, but there may be still another shock to come. You must stay here until you are stronger, and then I will help you escape. Now I had better go, before—before I am missed."

He heard her retreating footsteps and the closing of the door.

*Escape from what?* he wondered vaguely. The poison, or the antidote seemed to have brought about some curious psychological change in him. He could not think with the old, clear incisiveness. The drive was gone, the purposefulness of his mission to Ophir. He was like Samson shorn—or a man taken with void amentia whose mind be-

comes as a child's.

And it was so dark. A horrible suspicion arose in his mind. He searched for, and found the torch that was in his kit. He turned it on. Nothing happened. No beam of light shot out to illuminate the ceiling. He clicked the switch several times, then held the lens against his cheek. It was warm, all right.

He was stone blind.

WELLESLEY was not unlearned in the physiological sciences. He guessed that the blindness might be temporary—a result of neural shock, but that was scant consolation.

Now it seemed to him that since his arrival an invisible pattern of ill-will had been forming up around him. An ugly something lurking beneath the sullen surface of this strange village. A malignant force, beyond doubt, that well knew his true mission on Ophir.

Now he was helpless, incapable of concerted action. He could not even retreat, but only lie and listen and wait. Now it was *their* move. The terrors of the blind were apt to be blind terrors indeed.

The sounds were not long in beginning. At first an indistinct murmur. Then something—or someone—scampered swiftly past his door. He got up and locked it; then lay back, spent by the exertion. Presently the running and scampering began in earnest. And a hissing and squealing such as might have emanated from all the fiends in Hell. Once there came a scratching at the door.

An hour passed like a century. The sounds had gradually died away into an absolute silence that was much worse. He waited.

There came a knock at the door.

He sat up quickly. "Who is it?"

"It's me—Joseph."

He unlocked the door and the boy came in with light, eager tread. "You all right?" he said.

"Yes—yes, I'm all right. But I can't see. Tell me, what time is it?"

"It's nearly morning."

"Thank God! Now listen carefully. Do you know what a strategic withdrawal is?"

"Sure, everybody knows that. Every spaceman, I mean."

"Good. It is time for me to withdraw to my patrol monitor in space and make a radio report. Will you guide me to the rocket? There may be danger."

"I'm not afraid," Joseph said. "Come on, I know a short cut."

Wellesley slung his space kit over his shoulder and followed, with his hand on Joseph's collar. They went out into the night air which smelled fresh and clean after the daub-hut, and revived him a little.

At first he walked easily, for the ground was level, but after a minute or two the growth became heavy underfoot, causing him to stumble, and reeds were whipping against his face.

Presently they halted.

"Why have we stopped?" Wellesley asked.

"Here we are," Joseph said.

"We couldn't have gotten there in such a short time. Not even by a short cut."

"Put your hand out before you,"

Joseph commanded. "You'll see. I guess we can blast off any time." There was a sound of feet, scrambling up a steel ladder. A moment later he could hear Joseph's voice from inside, echoing hollowly.

He put his hand out and touched the ladder. The rungs were flaked with heavy rust beneath his finger. "*This is not my rocket!*"

"It's *my* rocket," said Joseph's disembodied voice, from somewhere above his head.

Wellesley cursed him.

"It's the fastest ship in the universe," Joseph said. "*Where you going?*"

Black anger possessed him, but the keen instinct of orientation common to men who have lived in interstellar space worked for his salvation. He might have blundered into the swamp, but he did not. Instead he came up, after a terrible half-hour, against the wall of a building which, by its immense extent, could only have been the warehouse. He moved along its sheer, featureless side until he came to a door, which reoriented him, then struck out in the direction that he guessed the daub-hut to be.

He bumped against it at last, located its door, flung himself in and thankfully bolted it behind him.

But he was not alone. She was there, waiting for him. He started when she spoke.

"Where have you been?" she breathed. "I have been terrified. I found the hut empty and I was sure that you were dead."

"Like a bad penny," he said, "I return. But your being here is good



fortune. I am certain that *you* will consent to leading a blind man to his ship without resorting to childish trickery. In fact, I shall make sure of it."

"Not now," she said. "It is too dangerous. We could never get through the swamp. Besides, you must still be weak from the effects of the poison. Let us wait until morning."

He seized her wrists and squeezed.

"You're hurting me!" she cried.

"Then waste no time. And if you try to break way, or lead me into a trap, I'll snap your wrist like a straw!" He dragged her to the door.

"Through the village is best," she said. "They are sure to see us, but in the open we may be able to outrun them."

"*Who* is sure to see us?"

"Never mind that now. Follow me!"

Their flight had a rather dream-like quality because nothing impeded them, even beyond the village. Miraculously she seemed to guide him where no underbrush or tangling grasses caught his feet, so that not once did he fall.

"There it is, just ahead," she said. "The rocket tubes appear to have sunk into the mud two or three feet, though. Do you think you will be able to take off?"

"It will not matter in the least," he said. "But tell me, is it still dark?"

"Yes."

"Quite dark?"

"Very dark," she said.

"That's all I wanted to know.

Open the airlock and climb up. I'll follow."

Once aboard, he found the controls and set them for take-off. Then he pressed a small button. The port began to swing shut. He heard her run toward it, but he caught her and held her until the heavy hatch had banged shut with a hiss of escaping air.

"Let me go," she whimpered. "What are you going to do to me?"

"You are under civil arrest," he said harshly.

"But I haven't done anything. I have helped you."

"Of course. But you forget that I represent law—not justice. Once I told you that I could be ruthless. You see, whoever you are, you are what I came here to find. I have suspected all along; now I am certain."

"What do you mean?"

"You brought me here without losing the way. Then, from a hundred feet away you saw that this rocket tender had settled two feet into mud. *All this in absolute darkness.* That must mean that you have night sight—like the natives, a sure sign of abnormality. Besides that, you have consistently avoided me in daylight. Meaning that I must not get a glimpse of you, even though you were able to see me quite well. You were the reason for Sealilly's hostility. He wanted to get rid of me before I found out about you. Joseph, the normal child, was used as a decoy to mislead me. But Joseph's sister was a mutant."

She fell to the deck, sobbing, as he throttled full power for the blast-off.

**W**ELLESLEY left Ophir a small, grey-green globe in the vastness of black space and set an automatic course for the mother ship, where he intended to submit a detailed report by radio to Regional Headquarters on Rigel Twelve.

So far as he was concerned, the case was closed, once they were aboard the patrol ship, but it was three weeks to the vicinity of Rigel, and in that time a curious sequel had developed.

The girl (her name turned out to be Laura) had stopped crying, and had begun to take an interest in life once more. In fact, he sensed that she was studying him a great deal of late.

They were standing before the viewport, she looking at the great angry mass of Rigel, magnified in the glass, but actually still two days ahead, he listening to every sound aboard the huge ship as he had learned to listen since the darkness closed in on Ophir.

She spoke. "How will it be on Rigel Twelve? Will I ever see you again?"

"Will you care?" he said.

"Perhaps I ought to hate you, but it is only because you are blind that you can not understand. On Ophir I was not happy, but at least it was home. Out there they may laugh at me. It is exciting and wonderful, but terrifying."

"They will not laugh at you. You will be allowed to live on any approved planet that you wish, and choose your own profession. You will be trained at the expense of the Empire. And in a few years

you may be allowed to visit your father and brother on Ophir. Only *visit*, I mean. Does that sound so bad?"

"But if they laugh—"

"I am not laughing," said Wellesley, with a strange lump in his throat.

"You might if you could see me. I'm too dark. My eyes are too big. My ears are too small."

"I *can* see you," he said.

"Is it true!" She clasped his shoulders. "But when—how long?"

"Since this morning, a little. The effect of the venom is passing. Now I can see you perfectly, and you are beautiful. Strange, and—and beautiful."

And she was.

"Do not go to Rigel Twelve. Stay with me," he said. (It was Wellesley's misfortune that he always sounded like a policeman making an arrest, but she kissed him anyway.)

And he thought what a fool Amos Sealilly had been.

But Amos Sealilly had had troubles of his own. It was the evening after Wellesley had taken leave of Ophir forever. Sealilly dreaded the coming night, as he always did, and had fortified himself against it. He was drunk, but not drunk enough.

The warehouse was locked for the day. He was walking toward the house, lurching a little, and mumbling curses as he did so. Then he spied Joseph.

Joseph, a small figure in the dusk, had just climbed out of the rusty old peak-tank at the edge of

the swamp. He had furnished it with a bunk, as befit a well-found spaceship, and often slept there.

The fact was that he had been sleeping there all day, having been up all night. Joseph did not go to school. He yawned and stretched.

Amos Sealilly went on to the house, and started to shut the door behind him, but Joseph, coming up behind him, pushed it open and came in. He was breathing hard, having hurried to catch up with his father. He asked:

"What about the spaceman?"

"What about him?"

"Was he lost in the swamp?"

"Where did you get that idea?"

Sealilly said. "He made it. Took off before you were up this morning, just before dawn."

"I *was* up," Joseph said. "I thought it was a meteorite. Damn!" He stamped his small foot.

Sealilly grinned thinly. "Laura went with him."

Joseph's face whitened. "*Laura?* Damn him! Damn her too."

"You always hated her," said Sealilly, taking the bottle out of his pocket and sucking it. "She was too normal for you to stomach, I guess."

"I would've got him if he hadn't run away like a yellow dog," Joseph said. "The stingbats would have done it if she hadn't interfered. And then this morning I had him, too." He was thoughtful for a moment. "Who do you suppose tipped him off?"

And he watched his father's pasty face.

"*Who?*"

Sealilly laughed.

"All right," Joseph hissed. "I'll get you for that. You wanted to get rid of *me*, I'll bet. But you got rid of her instead."

But Sealilly continued to laugh, inside, because this was almost as good as getting rid of Joseph, having Laura out of his clutches at last.

"Me and my crew will fix you for that," Joseph said bitterly.

And with that, his avatars came crowding in behind him, squat, powerful and ugly, their saucer eyes intent upon Sealilly.

He had been through it several times before, but this time he screamed a little bit before it was over. He could not get away from Joseph, of course. There was too many of him. ● ● ●

## COLLECTING BACK ISSUES?

IF you are a regular reader of IF and would like to complete your collection with copies of issues missed or lost—just send 35c for each copy ordered and we will mail them to you post haste. Nearly all back issues are available in limited quantities. Write to Circulation Department, IF Magazine, Kingston, New York.



# SATELLITE

(Continued from page 39)

**E**STABLISHING a satellite in its orbit is an extremely critical operation, which if improperly carried out could result in an orbit so eccentric that even though the satellite had the correct orbital velocity, it could re-enter the earth's atmosphere in less than one revolution around the earth. This of course, would result in its destruction. In fact, there are an infinite number of orbital paths possible depending on the attitude of the rocket while it is achieving its orbital velocity. Common sense therefore dictates that it be possible to make corrections in its course *after* it has arrived at the proper altitude.

It seems likely that if an instrumented third stage is used as the Satellite, the control and sequencing mechanism for all three stages will be carried in the third stage. This will include, besides a stabilized platform which acts as a point of reference for the guidance system, an integrating accelerometer. This device integrates the acceleration achieved by each stage, so that after a predetermined amount of velocity has been gained, the fuel is shut off and the stage is dropped. This is extremely important in order that the final stage will arrive at maximum altitude with the proper orbital velocity.

As each stage is exhausted, it is dropped and the control will be transferred to the next higher stage which will then carry on through its programmed flight until it has contributed its part to the altitude/velocity/attitude picture. It would

be of great advantage if the Stage III could arrive in its orbit with enough fuel left in its tanks so that observers on the ground could use its radio receiver to make minor adjustments in its course and velocity. It would then be possible to more nearly approach an optimum orbit, which would prolong the satellite's stay in space.

It is possible that Stage I, which will be a huge and costly affair, might be recovered by parachute; since it will be spent at an altitude of somewhere between ten and twenty miles. Stage II, however, will go so high and attain such velocity that frictional heat developed as it re-enters the atmosphere will destroy it. As announced, the three stage rocket will be launched at the Government's long distance rocket proving grounds on the Florida coast. This location will provide a good 5,000 miles of practically unobstructed ocean for the spent rockets to fall into, as well as a number of strategically placed islands which are already equipped with the instrumentation for tracking long distance military rockets.

It is practically impossible to do more than briefly touch on the immense technical complexities involved in getting such a small unmanned vehicle into space even temporarily. However, the second article, which will appear in the next issue of IF, will discuss in considerable detail the probable make-up of the third-stage Satellite Vehicle itself, as well as instrumentation of monitor stations. ● ● ●

*Alan's plan might save the  
race from extinction—but he  
was the clan's only husband  
and had to be protected from  
his own folly . . .*

**B**EFORE THE first shots rang out, Alan had been sitting with some twenty young people of the Wolf clan in a grove of aspen approximately half way between the fields and the citadel on the hill-top. He had been teaching them myth-legend and, as usual, the girls were bored and unbelieving, the boys open mouthed.

He realized, even as he spoke, that the telling had changed even since his own youth. As a boy of ten, before it was definitely known whether or not he was a sterile, he had sat at the feet of the Turtle clan's husband as open mouthed as those who sat at his feet now. But the telling was different. Now, had he spoken openly of when men bore weapons and women lived at home with the children, he would have crossed the boundaries of decency. It hadn't been so in his own youth, but then, when he was a boy, they had been one

# AFTER SOME TOMORROW

BY MACK REYNOLDS

*Illustrated by Ed Emsh*



generation nearer to the old days, which weren't so far back after all.

Helen complained, "This is so silly, Alan. Why don't you tell us something about . . . well, about hunting, or true fighting?"

He looked at her. Could this be a daughter of his? Tall for her fourteen years and straight, clear of eye, aggressive and brooking of no nonsense. The old books told of the femininity of women, but . . .

The shots went *bang, bang, bang*, from below, faint in the half mile or more of distance. And then *bang, bang* again and several *booms* from the new muzzle loading muskets.

Helen was on her feet first, her eyes flashing. Instantly she was in command. "Alan," she snapped. "Quick, to the citadel. All of you boys, hurry! To the citadel!"

She whirled to her older classmates. "Ruth, Margo, Jenny, Paula. Get stones, sharp stones. You younger girls go with Alan. See if you can help at the citadel. We'll come last. Hurry Alan."

Alan was already off, herding the boys before him. Possibly all of them were steriles and so wouldn't count. But you never knew.

As they climbed the hill, he looked back over his shoulder. Down in the fields he could see the workers scattering for their weapons and for cover. One stumbled and was down. In the distance he couldn't make out whether she had fallen accidentally or been wounded. Further beyond the fields he could see the smoke from a half dozen or more places where the shots had



originated. It didn't seem to be an attack in force.

Not far up the hill from the field workers, on a overhanging boulder in a lookout position, he could make out Vivian, the scout chief. She sat, seemingly in unconcerned ease, one elbow supported on a knee as her telescoped rifle went *crack, crack, crack*. If he knew Vivian there was more than one casualty among the raiders.

Who could it be this time? Deer from the south, Coyote or Horse from the east? Possibly Eagles, Crows or Dogs from Denver way. The clan couldn't stand much more of this pressure. It was the third raid in six months. They couldn't stand it and put in a crop, nor could the drain on the arsenal be maintained. He had heard that the Turtle clan, near Colorado Springs, the clan of his birth, had got to the point where they were using bows and arrows even for defense. If so, it wouldn't be long before they would be losing their husband.

He was puffing somewhat by the time they reached the citadel. Helen and her four girls were coming much more slowly, watching the progress of the fight below them, keeping their eyes peeled for a possible break through of individual enemies. The stones in their hands were pathetically brave.

The rounded citadel building, stone built, loopholed for rifles, loomed before them. He swung open the door and hurried inside.

"Hello, honey," a strange voice said pseudo-pleasantly. "Hey, you're kind of cute."

Alan's eyes went from the two figures before him, automatic rifles cuddled under their arms, to the two Wolf clan sentries collapsed in their own blood on the floor. They had paid for lack of vigilance with their lives.

He could see that the strangers were of different clans by their kilts, one a Horse the other a Crow. This would mean two clans had united in order to raid the Wolves and that, in turn, would mean the Wolves were outnumbered as much as two to one.

"Relax, darling," the second one said, a lewd quality in her voice. "Nothing's going to happen to *you*." Her eyes took in the dozen boys ranging in age from five to twelve. "Look like a bunch of sterilies to me," she sneered. "Get them up above, and those girls too. You stay here where we can watch you, honey."

The Crow went to a small window, stared down below. "Wanda is holding them pretty well but they're beginning to work their way back in this direction." She laughed harshly. "These Wolves never could fight."

Her companion fingered the Bren gun which lay on the heavy table top in the round room's center. Aside from four equally heavily constructed chairs the table was the large room's sole furniture. While Alan was ushering the boys and younger girls up to the second floor where they would be safe, the Horse said musingly, "We could turn this loose on them even at this distance."

The crow shook her head. "No.

It'll be better to wait until they're closer. Besides, by that time Peggy and her group'll be coming up from the arroyo. There won't be a Wolf left half an hour from now."

Alan, his stomach empty, stared out the loophole nearest him.

One of the women said, grinning, "You better get away from there, honey. Make you sick. That's a mighty pretty suit you've got on. Make it yourself?"

"No," Alan said. As a matter of fact one of the sterilies had made it.

She laughed. "Well, don't be so uppity. You're going to have to learn how to be nice to me, you know."

Both of them laughed, but Alan said nothing. He wondered how long the women of these clans had been without a husband.

Down below he could make out the progress of the fighting and then realized the battle plan of the aggressors. They must have planned it for months, waiting until the season was such that practically the whole Wolf clan, and particularly the fighters, would be at work in the fields. They'd sent these two scouts, probably their best warriors, to take the citadel by stealth. Only two of them, more would have been conspicuous.

They had then, with a limited force, opened fire on the field workers, pinning them down temporarily.

Meanwhile, the main body was ascending the arroyo to the left, completely hidden from the defending forces although they would have been in open sight from

above had the citadel remained uncaptured.

Alan could see plainly what the next fifteen minutes would mean. The Wolf clan would draw back on the citadel, Vivian and her younger warriors bringing up the rear. When they broke into the clear and started the last dash for the safety of their fortress, they would be in the open and at the mercy of the crossfire from arroyo and citadel.

If only these two had failed in their attempt to . . .

The Crow woman said, "Look at this. Five young brats with stones in their hands. What do you say?"

It was Helen and her four girls.

Alan said, "They're only children! You can't . . ."

"You be quiet, sweetheart. We can't be bothered with you."

The Horse said, "Two years from now they'll all be warriors. Here, let me turn this on them."

Alan closed his eyes and he wanted to retch as he heard the automatic rifle speak out in five short bursts. In spite of himself he opened them again. Helen, his first born, Paula, his second. Ruth, Margo and Jenny, all his children. They were crumbled like rag dolls, fifty feet from the citadel door.

Now he was able to tell himself that he should have called out a warning. One or two of them, at least, might have escaped. Might have escaped to warn the approaching fighters of the trap behind them. Tradition had been too strong within him, the tradition that a man did not interfere in the business of the warriors, that war was

a thing apart.

Jenny's body moved, stirred again, and she tried to drag herself away. Little Jenny, twelve years old. The rifle spat just once again and she slumped forward and remained quiet.

"Little bitch," the Crow woman said.

The heavy chair was in his hands and high above his head, he had brought it down on her before the rage of his hate had allowed him to think of what he was doing. The chair splintered but there was still a good half of it in his hands when he spun on the Horse woman. She stepped back, her eyes wide in disbelief. As her companion went down, the side of her face and her scalp welling blood, the Horse at first brought up her rifle and then, in despair, tried to reverse it to use its butt as a club.

She was stumbling backward, trying to get out of the way of his improvised weapon, when her heel caught on the body of one of the fallen Wolf sentries. She tried to catch herself, her eyes still staring horrified disbelief, even as he caught her over the head, and then once again. He beat her, beat her hysterically, until he knew she must be dead.

He worked now in a mental vacuum, all but unconsciously. He ran to the stair bottom and called, "Come down," his voice was shrill. "Alice, Tommy, all of you."

**THEY CAME**, hesitantly, and when they saw the shambles of the room stared at him with as

much disbelief as had the enemy women. He pointed a finger at the oldest of the girls. "Alice," he said, "you've been given instruction by the warriors. How is the Bren gun fired?"

The eleven year old bug eyed at him. "But you're a husband, Alan . . ."

"How is it fired?" he shrilled. "Unless you tell me, there will be no Wolf clan left!"

He lugged the heavy gun to the window, mounted it there as he had seen the women do in practice.

"Tommy," he said to a thirteen year old boy. "Quick, get me a pan of ammunition."

"I can't," Tommy all but wailed. "Get it!"

"I can't. It's . . . it's *unmanly*!" Tommy melted into a sea of tears, utterly confused.

"Maureen," Alan snapped, cooler now. "Get me a pan of ammunition for the Bren gun. Quickly. Alice, show me how the gun is charged."

Alice was at his side, trying to explain. He would have let her take over had she been larger, but he knew she couldn't handle the bucking of the weapon. Maureen had returned with the ammunition, slipped it expertly into place. She too had had instructions in the gun's operation.

Alan ran his eyes down the arroyo. There were possibly forty of them, Horses and Crows—well armed, he could see. Less than a quarter of them had the new muzzle loaders being resorted to by many as ammunition stocks for the old arms became increasingly rare. The others had ancient arms, rifles,



both military and sport, one or two tommy guns.

He waited another three or four minutes, one eye cocked on the progress of the running battle below. Vivian, the scout chief, had dropped back to take over command of the younger warriors. She was probably beginning to smell a rat. The intensity of fire wasn't such as to suggest a large body of enemy.

The women in the arroyo were placed now as he wanted them. He forced himself to keep his eyes open as he pressed the trigger.

*Blat, blat, blat.*

The gun spoke, kicking high the dust and gravel before the Horse and Crow warriors advancing up the arroyo.

They stopped, startled. The citadel was supposedly in their hands.

They reversed themselves and scurried back to get out of their exposed position.

He touched the trigger again. *Blat, blat, blat.* The heavy slugs tore up the arroyo wall behind them, they could retreat no further without running into his fire.

They stopped, confused.

Alan said, "Maureen, get another pan of ammunition. I'll have to hold them there until Vivian comes up. Alice, run down to the matriarch and tell her about the warriors in the arroyo. Quickly, now."

Little Alice said sourly, "A husband shouldn't interfere in warrior affairs," but she went.

When Vivian strode into the citadel she had her sniper rifle

slung over her back and was admiring a tommy gun she had taken from one of the captured Horses. "Perfect," she said, stroking the stock. "Perfect shape. And they seem to have worlds of ammunition too. Must have made some kind of deal with the Denver clans."

Her eyes swept the room and her mouth turned down in sour amusement. The Horse woman was dead and the Crow had by now been marched off to take her place with the other prisoners who were being held in the stone corral.

"What warriors," she said contemptuously. "A *man* overcomes two of them. *Two* of them, mind you." She looked at Alan, the reaction was upon his now and he was white faced and couldn't keep his hands from trembling. "What a cutie you turned out to be. Who ever heard of such a thing?"

Alan said, defensively, "They didn't expect it. I took them un-awares."

Vivian laughed aloud, her even white teeth sparkling in the redness of her lips. She was tall, shapely, a twenty-five year old goddess in her Wolf clan kilts. "I'll bet you did, sweetie."

One of the other warriors entered from behind Vivian, looked at the dead Horse woman and shuddered. "What a way to die, not even able to defend yourself." She said to Vivian worriedly, "They've got an awful lot of equipment, chief."

Vivian said, "Well, what're you worrying about, Jean? *We* have it now."

The girl said, "They have three

tommy guns, four automatic rifles, twenty grenades and forty sticks of dynamite."

Vivian was impatient. "They had them, now they're ours. It's good, not bad."

Jean said doggedly, "These raids are coming more and more often. We've lost ten fighters in less than a year. And each time they come at us they're better equipped and there're more of them." She looked over at Alan. "If it hadn't been for this . . . this queer way things worked out, they'd have our husband now and we'd be done for."

"Well, it didn't happen that way," Vivian said abruptly, "and we still have our husband and we're going to keep him. This wasn't a bad action at all. They killed three of us, we've got more than forty of them."

"Not three, eight," Jean said. "You forget the five girls. In another couple of years they'd have been warriors. And besides, what difference does it make if we've got forty of them? There're always more of them where they came from. There must be a thousand women toward Denver without a husband between them."

Vivian quieted. "Let's hope they don't all decide on Alan at once," she said. "I wonder if the Turtles are having the same trouble."

"They're having more," Alan said. He had lowered himself wearily into one of the chairs.

The two warriors looked at him. "How do you know, sweetie?" Vivian asked him.

"I was talking to Warren, a few weeks ago. He's husband of the

Turtle clan now, they traded him from the Foxes. Both clans were getting too interbred . . ."

"Get to the point, honey," Jean said, embarrassed at this man talk.

"The Turtles are having more trouble than we are. They have a stronger natural fortress at the center of their farm lands, but they've had so many raids that their arsenal is depleted and half their warriors dead or wounded. They're getting desperate."

"That's too bad," Vivian muttered. "They make good neighbors."

Jean said, "The matriarch told me to let you know there'd be a meeting this afternoon in the assembly hall. Clan meeting, all present."

"What about?" Vivian said, her attention going back to the beauty of her captured weapon again.

"About the prisoners. We've got to decide what to do with them."

"Do with them? We'll push them over the side of the canyon. Nobody thought we'd waste bullets on them did they?"

Alan said, mildly, "The question has come up whether we ought to destroy them at all."

Vivian looked at him in gentle annoyance. "Sweetie," she said, "don't bother your handsome head with these things. You've had enough excitement to last a nice looking fellow like you a lifetime."

Jean said, echoing her chief's disgust, "Anyway, that's what the meeting is about. Alan, here, has been talking to the matriarch and she's agreed to bring it up for discussion."

Vivian said nastily, "Sally is beginning to lose her grip. If there's anything a clan needs it's a strong matriarch."

"A wise matriarch," Alan amended, knowing he shouldn't.

Vivian stared at him for a moment, then threw her head back and laughed. "I'm going to have to spank your bottom one of these days," she told him. "You get awfully sassy for a man."

**A**S CHAIRMAN, Alan had a voice but not a vote in the meetings of the Wolf clan. He sometimes wondered at the institution which had come down from pre-bomb days. Why was it necessary to have a *chairman*. Of course, myth-legend had it that men were once just as numerous and active in society's economic (and even martial!) life as were women. But that was myth-legend. It all had a *basis* in reality, perhaps, but some of it was undoubtedly stretched all but to the breaking point.

Of course if all men *had* been fertile in the old days. But if you started with *if*, as a beginning point, you could go as far as you wished in any direction.

He called the meeting to order in the assembly hall which stood possibly a hundred feet below the citadel in one direction, another hundred from the stone corral which housed their prisoners, in the other. The Wolf clan was present in its entirety with the exception of children under ten and except for four scouts who were holding the prisoners. As chairman, Alan sat

on the dais flanked by Sally, the matriarch, 35 years of age, tall, Junoesque, on one side and by Vivian the scout chief, on the other.

Before them sat, first, the active warrior-workers, some thirty-five of them. Second, the older women, less than a score. Further back were the sterilies, possibly twenty of these and quite young, only within recent memory had they been allowed to become part of the clan, in the past they had been driven away or killed. Further back still were the children above ten but too young to join the ranks of either warrior-workers or sterilies.

Alan called the meeting to order, quieted them somewhat and then invited the matriarch to take the floor.

Sally stood and looked out over her clan, the dignity of her presence silencing them where Alan's plea had not.

She said, "We have two matters to bring to our attention. First, I believe the clan should make it clear to Alan, our husband, that such interference in the affairs of women is utterly out of the question. I am speaking of his unmanly activities in the raid this morning."

There were mumblings of approval throughout the hall.

Alan came to his feet, his face bewildered. "But, Sally, what else could I do? If I hadn't overcome the enemy warriors and turned the Bren gun on the others you would all be gone now. Possibly none of you would have survived."

Sally quieted him with a chill look. "Let me repeat what is well



known to every member of the clan. We consist of less than sixty women, a few more than thirty-five of whom are active. There are twenty steriles and twenty-five or so children. And one husband. A few more than one hundred in all."

Her voice slowed and lowered for the sake of emphasis. "All of our women—except for two or three—might die and the clan would live on. The steriles certainly might all die, and the clan live on. Even the children could all die and the clan live on. *But if our husband dies, the clan dies.* The greatest responsibility of every member of any clan is to protect the husband. Under no circumstances is he to be endangered. You know this, it should not have to be brought to your attention."

There was a strong murmur of assent from those seated before them.

Alan said, "But, Sally, I saved your lives! And if I hadn't, I would have been captured by the Crows and Horses and you would have lost me at any rate."

This was hard for Sally Wolf, but she said, "Then, at least, *they* would have had you. If you had died, in your foolhardiness, you would have been gone for all of us. Alan, two clans, husbandless clans, united in this attempt to capture you from us. While we fought to protect our husband, the life of our clan, we hold no rancor against them. In their position, we would have done the same. Much rather would we see you taken by them, than to see you dead. Even though the Wolf clan might die, the race

must go on." She added, but not very believably, "If they had captured you, perhaps we could have, in our turn, captured a husband from some other clan."

"The reason we probably couldn't," Vivian said mildly, "is that since we've turned to agriculture and settled, our numbers have dropped off by half. We had more than sixty warriors while we were hunter-foragers."

"That's enough, Vivian," Sally snapped. "The question isn't being discussed this afternoon."

"Ought to be," somebody whispered down in front.

"Order," Alan said. He knew it was a growing belief in the clan that giving up the nomadic life had been a mistake. From raiders, they had become the raided.

Sally said, "The second order of business is the disposal of the Horse and Crow prisoners captured in the action today."

Vivian said, "We can't afford to waste valuable ammunition. I say shove them into the canyon."

Most of those seated in the hall approved of that. Some were puzzled of face, wondering why the matter hadn't been left simply in the scout chief's hands.

Sally said, dryly, "I haven't formed an opinion myself. However, our chairman has some words to say."

Vivian looked at Alan as though he was a precocious child. She shook her head. "You cutie, you. You're getting bigger and bigger for your britches every day."

Two or three of the warriors echoed her by chuckling fondly.

Alan said nothing to that, needing to maintain what dignity and prestige he could muster.

He stood and faced them and waited for their silence before saying, "You feminine members of the clan are too busy with work and with defense to pursue some of the studies for which we men find time."

Vivian murmured, "You ain't just a whistlin', honey. But we don't mind. You do what you want with your time, honey."

He tried to smile politely, but went on. "It has come to the point where few women read to any extent and most learning has fallen into the hands of the men—few as we are."

Sally said impatiently, "What has this got to do with the prisoners, Alan dear?"

It would seem that he had ignored her when he said, "I have been discussing the matter with Warren of the Turtle clan and two or three other men with whom I occasionally come in contact. At the rate the race is going, there will be no men left at all in another few generations."

There was quiet in the long hall. Deathly quiet.

Sally said, "How . . . how do you mean, dear?"

"I mean our present system can't go on. It isn't working."

"Of course it's working," Vivian snapped. "Here we are aren't we? It's always worked, it always will. Here's the clan. You're our husband. After we've had you for twenty years, we'll trade you to another clan for their husband—prevents interbreeding. If you have a fertile son, the clan will either split, each half taking one husband, or we'll trade him off for land, or guns, or whatever else is valuable. Of course, it works."

He shook his head, stubbornly. "Things are changing. For a generation or two after bomb day, we were in chaos. By time things cleared we were divided as we are now, in clans. However, we were still largely able to exist on the canned goods, the animals, left over from the old days. There was food and guns for all and only a few of the men were sterilies."

Vivian began to say something again, but he shook a hand negatively at her, pleading for silence. "No, I'm not talking about myth-legend now. Warren's great-grandfather, whom he knew as a boy, remembers when there were four times or more the number of men we have today and when the sterilies were very few."

## WHAT IS YOUR SCIENCE I.Q.?

ANSWERS: 1—Energy. 2—Cesium. 3—Minus 118.8. 4—Binary. 5—550. 6—Water. 7—Nitrogen. 8—Polarized. 9—Sublimation. 10—1½. 11—All higher complex numbers. 12—Gamma. 13—33. 14—Polymerization. 15—Increases. 16—Meson. 17—Stone. 18—118-120. 19—Alpha. 20—300.

Vivian said impatiently, "What's this got to do with the prisoners? There they are. We can kill them or let them go. If we let them go, they'll be coming back, six months from now, to take another crack at us. Alan is cute as a button, but I don't think he should meddle in women's affairs."

But most of them were silent. They looked up at him, waiting for him to go on.

"I suppose," Sally said, "that you're coming to a point, dear?"

He nodded, his face tight. "I'm coming to the point. The point is that we've got to change the basis of clan society. This isn't working any more—if it ever did. There's such a thing as planned breeding . . ." it had been hard to say this, and the younger women in the audience, in particular, tittered ". . . and we're going to have to think in terms of it."

Sally had flushed. She said now, "A certain dignity is expected at a clan meeting, Alan dear. But just what did you mean?"

Vivian said, "This is nonsense, I'm leaving," and she was up from the speaker's table and away. Two or three of her younger girls looked after, scowling, but they didn't follow her out of the hall.

"I mean," Alan said doggedly, "that one of those Crow women has been the mother of two fertile men. To my knowledge she is the only woman within hundreds of miles this can be said about. We men have been keeping records of such things."

Sally was as mystified as the rest of the clan.

Alan said, "I say bring these women into the clan. Unite with the Turtles and the Burros so that we'll have three clans, five counting the Horses and Crows. Then we'll have enough strength to fight off the forager-hunters, and we'll have enough men to experiment in selective breeding."

Half of the hall was on its feet in a roar.

"Share you with these . . . these desert rats who just raided us, who killed eight of our clan?" Sally snapped, flabbergasted.

He stood his ground. "Yes. I'll repeat, one of those Crow women has borne two fertile men children. We can't afford to kill her. For all we know, she might have a dozen more. This haphazard method of a single husband for a whole clan must be replaced . . ."

The hall broke down into chaos again.

Sally held up a commanding hand for silence. She said, "And if we share you with another forty or fifty women, to what extent will the rest of us have any husband at all?"

He pointed out the sterilies, seated silently in the back. "It would be healthier if you gave up some of this superior contempt you hold for sterile males and accept their companionship. Although they cannot be fathers, they can be mates otherwise. As it is, how much true companionship do you secure from me—any of you? Less than once a month do you see me more than from a distance."

"Mate with sterilies?" someone gasped from the front row.

"Yes," Alan snapped back. "And



let fertile men be used expressly for attempting to produce additional fertile men. Confound it, can't you warriors realize what I'm saying? I have reports that there is a woman among the Crows who has borne two fertile male children. Have you ever heard of any such phenomenon before? Do you realize that in the fifteen years I have been the husband of this clan, we have not had even one fertile man child born? Do you realize that in the past twenty years there has been born not one fertile man child in the Turtle clan? Only one in the Burro clan?"

He had them in the palm of his hand now.

"What—what does the Turtle clan think of this plan of yours?" Sally said.

"I was talking to Warren just the other day. He thinks he can win their approval. We can also probably talk the Burros into it. They're growing desperate. Their husband is nearly sixty years old and has produced only one fertile male child, which was later captured in a raid by the Denver foragers."

Sally said, "And we'd have to

share you with all these, and with our prisoners as well?"

"Yes, in an attempt to breed fertile men back into the race."

Sally turned to the assembled clan.

A heavy explosion, room-shaking in its violence, all but threw them to the floor. Half a dozen of the younger warriors scurried to the windows, guns at the ready.

In the distance, from the outside, there was the chatter of a machine gun, then individual pistol shots.

"The corral," Jean the scout said, her lips going back over her teeth.

Vivian came sauntering back into the assembly hall, patting the stock of her new tommy gun appreciatively. "Works like a charm," she said. "That dynamite we captured was fresh too. Blew 'em to smithereens. Only had to finish off half a dozen."

Alan said, agonizingly, "Vivian! You didn't . . . the prisoners?"

She grinned at him. "Alan, you're as cute as a button, but you don't know anything about women's affairs. Now you be a honey and go back to taking care of the children."

• • •

## WATCH FOR FRANK RILEY'S LATEST

AN EMINENT university professor has predicted that Man will soon be the master of his heredity through genetics—and that the goal will be the *psi mind*. But what happens when a laboratory on the scale of life itself is set up to carry out the idea? What is the ultimate end when aliens force Man to toss off the drag of orthodoxy and dogma and face new horizons? Frank Riley's newest story, PROJECT HI PSI, provides some interesting answers—and exciting reading. Don't miss it in the August issue of IF . . . Ask your newsdealer to reserve your copy *Now!*

# NIGHT COURT

*With a new cast nightly, it was the best show in town. Gay crowds mobbed the box office for tickets; but few went back more than twice . . .*

BY NORMAN ARKAWY

THE OLD courthouse was in the unreconstructed part of town. No buses ran out here, and the only way that Stan and Julie could reach the court was on foot, threading their way through the debris of neglect and vandalism that littered the narrow streets.

This was a part of New York

that Julie had never seen. Twentieth century tenements, dimly illuminated by ancient incandescent lamps, lined the rubble-filled streets, where garbage and the decaying carcasses of poisoned rats lay stinking in the gutters. The night was warm, but Julie shivered. She hurried along at Stan's side,



*Illustrated by Paul Orban*

trying to hold her breath to shut out the unpleasant smells.

They stopped at the edge of the sidewalk across the street from the court and watched a crowd of people milling about the entrance, anxiously pressing to the box office to try to get hard-to-get tickets.

"Look at that mob!" Julie said.

"We'll never get in!" She tried to sound disappointed, but she knew that she could not hide her feeling of relief. She didn't want to go in. She wanted to go away, back to the clean, pretty city she knew.

Stan smiled and patted her hand. "You underestimate me, honey. Little Stanley knows how to take



care of himself. I knew there'd be a crowd tonight, so . . ." He drew two tickets from his pocket. "If you don't reserve 'em, you don't deserve 'em, I always say!"

He took her hand, and they started across the street toward the courthouse. It was a bleak, gray, stone-faced building whose ornate sculptured trim was weather worn and darkened with age. Once an aspiration to architectural beauty, it was pathetically ugly, a melancholy reminder of a bygone and possibly better era.

A modern theater marquee had been incongruously added to the old structure and, atop the shiny new addition, huge letters of light spelled out NIGHT COURT. Smaller cast aluminum letters protruded upward from the metal rim of the arcing canopy and formed the words of a motto: "Judge not, that ye be not judged". Bold type plastered across the gleaming glass facade of the marquee loudly proclaimed: "NEW SHOW NIGHTLY".

Stan and Julie pushed through the congestion outside the entrance of the court. A dizzying confusion of elbows and backs and sweating, eager faces surrounded them. Stan squeezed through the seething mass of people and, holding tightly to his hand, Julie followed. For the tenth—or hundredth—time, she was sorry that she had come. But it was too late to turn back now.

Stan showed his tickets to the guard at the door, and they were ushered politely inside where a uniformed woman with a military bearing guided them to their seats.

"Your ID cards, please," the young woman said.

Julie was startled by the request, and alarmed. A confiscated ID card meant trouble—police trouble! "Why?" she asked, nervously, "What did we do?"

Stan smiled knowingly. "It's just a formality," he assured her. "They give it back to you when you leave." He handed the usher his card.

"And yours, miss?"

Hesitantly, Julie took out her wallet. A cold premonition urged her to stop, to leave now, before it was too late. Then she saw Stan's amused eyes grinning at her and she reminded herself that it was already too late for her to leave. She gave the girl her ID card.

The usher smiled mechanically. She handed them each a program and hurried away up the aisle.

"Don't worry, honey," Stan said, "you'll get it back." He held his program up for her to admire. "Pretty snazzy, huh?"

Julie nodded half-heartedly and silently leafed through her own program. It was a four page souvenir booklet. On the first page, or front cover, was the seal of justice with a perfectly balanced scale and a few words of Latin. Above the seal, NIGHT COURT OF THE CITY OF NEW YORK was embossed in black on the slick yellow paper, and below it, the legend "Judge not, that ye be not judged". Beneath the seal, in red italics, was the inscription: "*For with what judgment ye judge, ye shall be judged: and with what measure ye mete, it shall be measured to you again.—Matthew, 7:2.*"

The page was set up attractively but, Julie thought, the quotations seemed inappropriate. What was the purpose of the court, if not to judge?

"I still can't figure it out," Stan said, as if he had read her thoughts. He reached over and tapped Julie's program with his finger. "This is the third time I've been here, and you can believe me, honey, they both judge and mete out justice in this place!" He grinned at her. "This 'judge not' business doesn't make sense!"

Julie said nothing. There was nothing to say.

The room was rapidly filling up now, and she watched the people slowly filing in. She was fascinated by the looks of anticipatory pleasure in their faces, the whole place tingled with barely repressed excitement.

The spectators packed into the room until every seat was taken and they were standing, eight deep, in the rear of the court. Scanning their faces, Julie could feel—could almost taste—the many varied emotions that radiated from them: amusement, lust, hatred, curiosity, vengeance. It was a puzzling combination.

"Now, *this* quotation makes some sense," Stan was saying. Julie turned her attention back to him. He had opened his program booklet to the centerfold, and he pointed to an inscription printed across the top of the two inner pages. "An eye for an eye, a tooth for a tooth," he recited. "That's what this place really stands for!" He said it with relish.

Julie began to feel sick. She did not like the hungry look on Stan's face or the merciless atmosphere in the courtroom. Why had she come?

She stifled a shudder. She knew why she had come. She had come because Stan wanted her to and, to be honest, because she had been curious to see what the Show was like. Now that she was here, she could not call the whole thing off just because her curiosity was satisfied or because she was too squeamish to enjoy what many people considered the best entertainment in town. She had no right to ruin Stan's evening.

She tried to assume a casual interest in the impending events. "What are all these lines for?" she asked weakly, indicating the horizontal lines that crossed the inner pages and were bisected by three vertical lines into four columns of uneven width. "It looks like a ledger."

"It is, sort of," Stan said. "Y'see, honey, this is a scorecard. In the first column, you put the name of the accused; in the second, the offense he's charged with; in the third, his plea; and in the fourth, the disposition of the case. Up here," he explained, showing her the appropriate place, "you fill in the name of the presiding magistrate. And here," he continued, "you put in the date. It makes a nice souvenir. If you fill it out right, you can look at it six months from now and remember all the fun, just as if it were happening all over again."

"Fun?" Julie's voice cracked.

"Sure!" Stan said with enthusiasm. "It's a terrific show! Everyone has a good time. Well, anyhow . . ." and he chuckled, "everyone but the bums!" He laughed.

A man in the row in front of them turned around and looked at Julie. Perspiration glistened in an oily film on his round, pudgy moon-face. A lewd grin twisted his mouth. "First timer?" he asked.

Stan grinned back at him, sharing a comradeship of common experience. "Yeah. I kept telling her she didn't know what she was missing. Finally convinced her to give it a try. I've been here twice before, myself," he added proudly.

"Yeah? Me too!" the man said. "Guess that makes us real old pros: third timers!" He laughed and mopped his face with a crumpled handkerchief. "Damn! it's hot in here!"

Mild embarrassment and a violent dislike for the oily-skinned man combined to redden Julie's face in a hot blush. She shifted uncomfortably in her seat.

"Y'know, I never thought of it before," Stan said to the man in front, "but now that you mention it, I don't know of anybody who's been here three times." A smile of accomplishment spread onto his face. "I'll bet I'm the first one in my sector!"

A growing anger blended into Julie's feeling of disgust. "I don't see that it's anything to be proud of," she said coldly.

Stan's laugh was a derisive bray. "She talks just like a first timer, doesn't she?" The man in front of them nodded knowingly, again

sharing with Stan the common bond of experience.

"The next thing you know," Stan jeered kiddingly, "she'll be preaching to us like one of those crackpot reformers."

The revulsion that Julie felt must have been clearly evident now. Stan smiled fondly and put his arm around her shoulder. "I'm only kidding, honey," he half-apologized.

"What's so wrong about the reformers?" Julie demanded, angrily shrugging away his arm. "Why shouldn't men be given another chance? What . . . ?"

"Men?" The man with the moon face burst into loud laughter. "Wait'll you see these bums, kid! They're not men, they're *things*!"

"He's right, honey," Stan said. "These joes don't have any homes or jobs or families or friends. They don't even have ID cards."

"No ID cards?" That was impossible! But Julie was beginning to learn that many impossible things could happen in a world that most citizens knew nothing about. "Then how can they be expected to get jobs? You've got to have an ID card in order to be assigned . . ."

"That's the general idea, lady," someone nearby said in a loud voice. Several people laughed. "You don't wanna put the court out of business, do ya?"

Julie's lips trembled as she opened her mouth to voice the word that shouted emphatically within her: yes! yes!

"Here they come!" someone shouted, and excited conversation



buzzed throughout the room. Julie's voice was never heard. She stared silently at the people near her, then turned to the front of the room to see what they were all watching so avidly.

A straggling line of bedraggled, dirty, unshaven men shuffled into a wire enclosure set along the right wall of the courtroom. Crushed men—weary, lifeless, resigned to a life without hope—they filed into the pen and slumped onto the wooden benches that were placed lengthwise in three rows in the oblong cage. Their shoulders drooped in beaten curves. Their heads were bowed.

The man in front turned around and nudged Julie's knee. His triumphant smile was an obscenity. "Call those men?" He laughed and winked at Stan, then turned back to the front of the court to watch the preliminary proceedings.

An incipient convulsion crawled about in Julie's stomach. Her knee felt cold and clammy where the moon-faced man had touched it. Her skin was prickly and tight. She began to itch.

"Get up, honey," Stan was saying. "Here comes the judge."

She stood, numbly, her eyes riveted on the men in the wire enclosure.

"Julie!" She felt a hand tugging at her arm. "You can sit down now, Julie," Stan said. "Sit down!"

Mechanically, she sat down. Woodenly, she stared at the tableau before her—the judge perched on his elevated throne, the stone-faced attendants at each side of the dais, the wire pen filled with misery.

Through the almost tangible excitement and glee of the spectators, the misery reached her, held her.

**T**HE COURT was in session: the people of the City of New York against . . . against an assortment of outcasts—drunks, derelicts, cripples, beggars—the "undesirables" that had been rounded up by the police in the past twenty-four hours. The people of the City of New York against a pen full of men whose only crimes, for the most part, were sickness, lack of hope and failure to possess the ID cards which everyone needed and which, somehow, they had been denied.

How? Julie wondered. How could anyone not have an ID? Even if you lost your card you could get a new one simply by paying a fine. Even if you had been in prison you got a new card when you were released. You had to have a card! Everyone had to . . .

A court attendant called out: "Garcia, Miguel!" and a small, dark-complexioned man walked out of the detention pen and stood meekly before the judge.

The clerk of the court read the charge, rattling it off in the sing-song jargon of court clerks, his words slurred together into one almost unintelligible burst of sound. There was a pause, and silence in the courtroom.

"Well?" said the magistrate, "how do you plead?" His voice sounded kindly. He sat high on his bench, hunched into his black robe, and looked down with apparent be-

nignancy on the little man who stood silently before him.

The audience was hushed. It watched hopefully and waited.

Julie could sense the intense excitement in Stan as he leaned forward, straining to catch every detail of the scene, anxious not to miss a thing.

She heard a giggle, then Stan's hearty laugh, then a loud burst of laughter. She opened her eyes.

The defendant was shrugging his shoulders in bewilderment. He turned half-way around to look at the laughing audience, a sheepish grin on his face.

The magistrate smiled his appreciation of the humorous response to his question. "So, you can't make up your mind?" he said in a seemingly friendly and sympathetic way. "Well, I'll tell you what I'll do, Miguel. I'll give you thirty days in the city's hotel to think it over."

Laughter and applause filled the room. The judge nodded his head in a little bow of acknowledgement. Miguel Garcia was led away, still smiling, obviously ignorant of what was happening. Miguel Garcia apparently did not understand English.

Stan was happily filling in the first line of his scorecard. His face was flushed. His eyes were bright. A satisfied smile lingered on his lips.

"Stan, let's leave," Julie said.

Stan laughed in disbelief. "Are you kidding? The fun's just starting."

"Please, Stan. I . . . I don't feel well."

"Oh? I'm sorry, honey." It was

a formality, like saying 'I beg your pardon' to a stranger you bump into in a crowd. There was no concern in Stan's voice. The second case was being presented, and his attention was rapt upon the clerk and the object of the proceedings, an old white haired derelict.

"Stan, please!" Julie insisted.

"Look, honey," Stan said impatiently, "we can't leave now, even if we wanted to. They don't give back the IDs until after it's all over."

A sharp burst of laughter brought his attention abruptly back to the action up front. The old man had dropped his hat and an attendant had kicked it away from him. The white haired castoff shuffled across the room to retrieve it.

"I missed something!" Stan said, testily. He turned to his neighbor and was hurriedly filled in on what had happened.

"Well, *I'm* leaving!" Julie said. She got up and edged her way out to the aisle. Stan made no protest. He was concentrating on the performance up front.

Julie hurried up the aisle and pushed through the pack of people standing in the back of the room. She found the usher at the door. "I'd like to leave," she told the girl. "May I please have my ID?"

The usher's face was expressionless, her voice efficiently official. "ID cards will be returned at the conclusion of the session."

"But I want to leave now!" Julie protested. "I don't want to see any more of this!"

"No cards can be returned until the session is concluded," the usher

recited. It was a final decree of official policy. There could be no arguing, no appeal from the decision. There was no alternative but to abide by it.

Julie returned to her seat. She squeezed past a barricade of knees, rousing disgruntled comments from several of the spectators.

Stan glanced up at her as she settled back into the seat at his side. It was only a glance, and then his eyes were fixed once again on the magistrate, the attendants, and the "undesirable" being judged.

Minutes passed. Hours. Julie suffered the time in silence. She saw and heard, but could hardly believe, the unrestrained sadism of the giggling, laughing, applauding, cheering, jeering audience. What kind of people were these, who laughed at the pain and humiliation of others? What did they find amusing in the ruin of human life?

They laughed when a partially paralyzed hunchback limped before the judge and pleaded guilty to a charge of ogling girls in a public park. They roared with hilarity when the magistrate suspended sentence and commented that a more appropriate charge would have been that of defacing public property. They applauded lustily when he said to the arresting officer, "Bring him in on that one tomorrow and I'll throw the book at him!"

They laughed when an alcoholic appeared, twitching and brushing imaginary creatures from his torn jacket. They howled gleefully when

he whimpered and sobbed like a small boy having a nightmare.

They laughed when the magistrate said his fountain pen had run out of ink and, looking into the detention pen, inquired, "Would any of you blue bloods care to make a donation?"

They laughed when a court attendant read a complaint which charged that the defendant, a small skinny man, had attacked the arresting officer, and that the officer (six-three, two hundred and ten pounds) had used reasonable force in defending himself. The man's broken arm was in a sling and bandages covered twelve stitches in his scalp.

The audience laughed. They gloated. They sat in judgment of their fellow men and called for punishment—the more severe, the better.

At last, the detention pen was empty. The last "undesirable" was brought before the bench. He was a small, pathetic looking man dressed in sailor's dungarees. He spoke Norwegian and clumsily tried to explain his predicament with the few words of English that he knew.

"Stop gibbering!" the judge shouted at him. The magistrate's facade of kindness had long since disappeared. He turned to the arresting officer. "Do you speak that language?" He made it sound like a disgrace to be able to speak Norwegian.

The officer shook his head.

"Neither do I," the magistrate said, with obvious pride that he was not contaminated by such knowledge. He arbitrarily ordered



the man held until he learned to make himself understood; the hearing to take place when that had been accomplished. The sailor was led away.

The Show was over.

"That's the end of it, folks," the judge said, genially. He tapped his gavel and rose from his seat. The courtroom rang with lusty applause.

The judge hurried through the door to his chambers and the applause died out. The people started to leave. Their animated discussions of the evening's events dinned through the room in a babble of noise.

**J**ULIE'S head throbbed painfully and there was a queasy feeling in her stomach. She thirsted for fresh air.

Slowly, the mob of spectators formed a procession in the aisle. Slowly, the column of people moved toward the exit. Slowly, slowly, Julie was pushed along with the crowd.

The line paused as each person stopped at the door and waited until his ID card was located and returned to him. Then the procession would take another step forward. And pause again. And again. Occasionally, an ID could not be found and its owner was requested to step aside and allow the line to move on while the search for his card continued. And there was another step forward.

Stan held Julie's hand to prevent the pressing crowd from separating them. "How'd you like it?" he asked. He was aglow with satisfac-

tion, tired by the long evening's excitement but with a pleasant weariness of accomplishment. "It's a terrific show, isn't it?"

Julie did not answer him. She wanted to break away and run and run and run and run! She inched along with the rest of the procession.

At last they reached the door. They told the usher their names and she methodically checked through the cards in her file. The procession behind them waited.

Julie's ID card was quickly found and returned to her, but the usher reported some difficulty in finding Stan's card. He was asked to step aside, please, and let the line go through. He protested at the inconvenience, then sullenly joined a few other people waiting for their cards in the rear of the court.

Julie stood impatiently in the doorway. She watched Stan strike up a grumbling conversation with another detained person. It was the moon-faced man who had been sitting in front of them. For a fleeting moment she thought of the old adage about "birds of a feather".

She waited. People filed past her in a steady stream, from the courtroom, across the lobby, out through the street door. Watching them—smiles and pleasant conversation, civilized small talk and serious debate of the merit of the evening's fare, as if it were a dramatic work of art. She clenched her teeth and prayed that Stan would hurry up.

Soon the flow of people stopped. Still no Stan. Julie waited.

Some twenty minutes later, an attendant came out of the court-

room. He went past Julie, then paused at the door, turned and came over to her. "Waiting for someone, miss?"

"Yes. My friend. They seem to have misplaced his ID card."

The attendant smiled and shook his head. "You might as well go on home, miss. If he's still in there, he won't be coming out for some time."

"I'll wait," Julie said.

"You don't understand, miss. He won't be out tonight."

"What are you talking about? He's just waiting till they find his ID, and it couldn't have gotten up and . . ."

"Seventeen IDs were lost," the attendant explained. "Those people in there can't get them back. They're going to have to go to Caracas or Milan to apply for new cards."

"Don't be silly!" Julie scoffed. "You don't have to go to another city to apply for a new card! All you have to do is file a claim and pay the fine."

"These are special cases," the attendant said uneasily. He seemed reluctant to talk about it.

Julie frowned. "What's special about them? Their ID cards were lost, weren't they?"

"Look, miss, all I know is every time an ID is lost in there," he nodded toward the courtroom, "they've gotta go out of the country to apply for a new one. That's all I can tell you."

"But why out of the . . .?"

"The reassignment orders are being drawn up right now," the attendant said. He led Julie to the

street exit. "So you'd better go home and forget that fellow."

Confusion and a vicarious fear made Julie shiver. "Will he . . . will they get new cards?"

The attendant shrugged. "They might—some day." He touched her arm. His voice was low, barely audible. "Was this your first time at the Show?"

Julie nodded.

"How did you like it?"

"I . . . I . . ." She shook her head.

The attendant smiled at her gently. "Don't ever be a third-timer." He released her arm and hurried away down the street.

Julie puzzled over his parting remark as she went out into the foul smelling night and walked away from the courthouse. Suddenly, the street before her dimmed as the lights on the huge marquee blinked out. She turned and looked back at the entrance of the court, now dark and deserted. And then she understood.

She remembered the moon-faced man's observation about the scarcity of third-timers. She understood how the "undesirables" lost their ID cards and why so many could not speak English. She understood the apparent cruelty of the sentences meted out to them, too.

The answer was on the marquee. As she looked back at it, only the raised letters on the canopy were visible, shining luminously in the darkness: "*judge not, that ye be not judged*". And she recalled the quotation on the program: "*For with what judgement ye judge, ye shall be judged.*" ● ● ●



**Hope** of making milk a disease-germ-fighting substance—so that all who drink it would have immunity to a host of ailments—is held out for the future by researchers at the University of Minnesota. The method would be to inject vaccines for disease-causing bacteria and viruses into the cow's udders. In response to this kind of vaccination, cows produce large quantities of antibodies. This would give milk drinkers passive immunity, which is not as long lasting as the kind one gets from an attack of a disease or a vaccination. However, by continuing to drink the milk the passive immunity could be continued.

**Science minded** folks of the future may soon be adding two new words to their vocabulary of measurements. Timekeeping with atomic clocks has produced the word "essen" to designate a second as measured by atomic vibrations, to distinguish it from the word used to designate astronomical seconds. "Roof" is a new unit described as the quantity of energy that would fall on the actual roof area of a small house about 33 feet square during a day when the sun shines

at the rate of a million calories per minute. Architects of tomorrow who will be thinking less in terms of insulation to keep out the sun's heat and more in terms of using the roof as part of the heating system will be making this new unit a common household term to replace "gallons" of oil and "tons" of coal.

**The marriage** of the engine of the future with the fuel of the future was described recently at the first unclassified public discussion of nuclear gas turbines. Such nuclear gas turbine plants will have their greatest application in ships and in areas where other power plants cannot be used. With a gas turbine as the ideal power take-off for the nuclear reactor, they could be used in remote areas where power is now unavailable, where storage of conventional fuels is a problem, and during wartime where both storage and refueling for long lifelines are important. The gas turbine power plant takes up less space and operates at a higher efficiency than do power plants run on water or fossil fuels. Perhaps their greatest advantage over existing power plants is the fact that they can be transported from one place to another. Although there are still refinements to be made, nuclear gas turbine plants are a fact, and will come into use in the not too distant future.

**Housewives** may have to go to the frozen food counter for a loaf of bread in tomorrow's supermarket. Bakers are looking hopefully toward the commercial freezing of



bread, a practice that promises to reduce staling, loss of unsold loaves and costly night baking. Experts have probed into the technical problems, and learned that the maximum storage temperature for top quality bread is 10 degrees Fahrenheit for periods of about a week. Zero degrees is needed for extended storage. Moisture distribution, firmness, and taste are essentially the same as in freshly baked bread and will remain that way for four to seven weeks at zero degrees Fahrenheit.

**Aircraft** of the future may have to be designed to last for only a few hours, and then be scrapped. The problems created by the thermal barrier are triggering this new design philosophy. The two problems that must be mastered before Man's missiles can break through the earth's atmosphere at supersonic speed are: heat and creep (the softening of materials under increased stress). At five times the speed of sound at sea level temperatures are sufficient to melt the best aluminum alloys known. This, coupled with a weight penalty due to weakening of materials brought on by aerodynamic heating, may limit sustained flight to a region below three and a half times the speed of sound.

**A national** astronomical observatory, long the dream of astronomers, will become an accomplished fact in about five years. The first of its kind in the United States, the observatory will probably be run jointly by several institutions. It

will give astronomers from all over the country much better research facilities than their institutions can separately afford. A grant of \$279,000 has been made to the University of Michigan to look for an appropriate site and begin construction of a 36-inch telescope.

**A mass trial** of a vaccine against a special type of infectious cold is expected to get under way within a year. It will be similar to the trials of the polio vaccine; but instead of grade school children, military recruits will be lining up for shots. A vaccine for the grippe-like virus colds has already been tried on prison volunteers. It prevented the sickness in about 70% of the susceptible volunteers when the vaccine was "challenged" by doses of live virus swabbed into the eye. It is expected to give even greater protection against naturally caught disease, since a person is not likely to get such a big dose of virus that way. The vaccine caused no reaction among the volunteers and takes effect within ten days to two weeks. It will probably protect for a year or more, although this fact has not yet been proved.

**There may** be a whole new concept of music for the listeners of tomorrow. R.C.A. recently announced a "music synthesizer"—electronic equipment that can imitate any known musical sound or instrument and also create a multiplicity of sounds for which there is no known mechanical means of generation. The device also has an

endless capacity for rhythmical variation.

**Jet planes** may soon be able to land on runways only one-third as long as those now needed. Engineers have been experimenting with a new type of built-in brake for jet craft known as thrust reversers. The reversers scoop up the jet blast, diverting it to the opposite direction. The devices can potentially reduce ground roll far more efficiently than the parachutes used at present. The idea behind them is not only to slow down the jets on landing, but to brake them in mid-air.

**Totally automatic** defense of North America by guided missiles automatically directed to their target by giant electronic "brains" is only a matter of time. This is foreseen with the announcement of a new electronic system which controls aircraft flight and fires the plane's rockets at the proper instant after it is within 15 miles of its target. When the radar "eyes" spot the attacking bomber, the pilot pushes a button, locking the radar on target. An electronic computer takes over, flying the plane on interception course no matter how the bomber maneuvers. At exactly the correct moment, the rockets are automatically launched.

**The U.S. Army** has developed a new radio transmitter powered by the voice of the sender alone. The one-and-one-half pound device requires no batteries or external source of power and may be able

to transmit at a range of one mile. A tiny companion receiver now under development would use voice energy that had been stored up during transmission to power it. Together the two would make a battery-less walkie-talkie small enough to fit into a telephone mouthpiece.

**A new experimental** machine which can print, at the touch of a single key, any one of 42 eighteen-character words or phrases at the rate of 150 words per minute was recently announced by I.B.M. The model is a standard electric typewriter. Connected to it is a memory system set up in a control panel. The typewriter can be used normally, but a slight pressure on a foot switch converts it into the Wordwriter which types the stock phrases such as "Dear Sirs:", "In response to your request", "Yours truly", etc.

**Spaceman's air domes** may soon be dotting the countryside. Inflated fabric domes used for housing radar equipment have pointed the way for practical construction of such buildings. Structures such as these already in use can withstand wind velocities up to 100 miles per hour and varying temperature changes. Practical aspects of these inflated buildings include portability, safety, and unlimited space; commercial blowers being the only mechanical device necessary to maintain the pressure to keep them inflated. Researchers at Cornell are already constructing a hockey rink using this principle.

# Hue AND Cry

Dear Mr. Quinn:

As one of your silent readers who has bought your fine book ever since it came out without missing an ish, I've a gripe to give you. Why the heck have you gone bi-monthly? Good grief, with the hokum and bunk several other mags offer all the time without folding, you're at least as good as any of the rest pubbing monthly. The poorer mags as a rule are the ones pubbing less often or on a bi-monthly schedule. You've got a first class mag! Why bi-monthly then?

I like the idea of bringing back the letter department; also the other departments. But you could still use a few more. It's like the guy who gets a grade-A steak three times a day—he finally gets tired of it and wouldn't mind eating the humble bean or potato in between—not that there's anything humble

about good non-fiction.

In the February ish, G.A. Kempner's letter is in part foolish. He argues that time travel is for the birds. So was atomic power 25 years ago, at least in theory. Then he really puts his foot into it re telepathy. "... no conclusive evidence is available at present". I wonder what Dr. Rhine would say to this, or what several scores of students and scientists who participated in conclusive telepathic experiments would voice in angry rebuttal? These people ain't a bunch of Rosicrucians bub! This can be considered answer enough to the rest in "Hue and Cry" who hold with Kempner's viewpoint.

How about having Cal Beck do some fanzine reviews, club reports, movie reviews and similar stuff, and get Miller or Knight for book reviews. With men like that in IF, you'd have about the best mag in SF, bar none.

—Bernard Krumpel  
Newark, N. J.

*See this issue for that non-fiction but this is definitely not "the bean and potato" kind. As to the other suggestions . . . how about some reader comments?*

Dear Editor:

I have just finished reading Jim McConnell's very good story "Avoidance Situation" and can only say "he goofed". He refers to a  $C^2$  drive and a  $C^2$  radio. He neglects the fact that  $C^2$  is not a velocity. Consider  $c = 3 \times 10^{10}$  cm/sec. Then  $c^2 = 9 \times 10^{20}$  cm/sec<sup>2</sup>. Obviously this is not a



velocity.

Now I suppose someone will say that he didn't mean to square the units, only the numerical magnitude. Let us see where this leads. Considering  $c^2$  as a velocity we get: for  $c = 3 \times 10^{10}$  cm/sec,  $c^2 = 9 \times 10^{20}$  cm/sec; for  $c = 1.86 \times 10^5$  miles/sec,  $c^2 = 3.46 \times 10^{10}$  miles/sec, which is the same as  $5.57 \times 10^{15}$  cm/sec; for  $c = 1$  (light-sec)/sec,  $c^2 = 1$  (light-sec)/sec which is the same as  $3 \times 10^{10}$  cm/sec. Obviously the value of  $c^2$  depends upon the units used in  $c$ .

Now Mr. McConnell says that the Terran ship can travel faster in subspace than the alien can using the  $c^2$  drive. This implies that the alien uses the same system of units as we do. This is a statistical nightmare. The units we use are arbitrary. (This would not be the case if we used a distance of 1 light unit and a time of the same unit, but then  $c^2$  is no faster than  $c$ .) I cannot see how the alien could have the same system.

—Stuart L. Anderson  
Seattle 22, Wash.

*It would be a coincidence; but how else could McConnell get the idea across for the non-mathematician?*

Dear Editor:

As an old time "sfan"—if I may coin such a word at this late date in my science-fiction career—I find great interest in your articles by Forrest Ackerman, whom I knew well in the early thirties. His Feb-

ruary comments on the origin of S-F terms particularly intrigued me.

While he did not mention the word "scientifilm", I've seen it used enough to make me take a small measure of pride in having created that hybrid. If I remember correctly, it first appeared in print in *The Time Traveller*, the earliest sfan paper, which I edited back in 1932. Since I don't have a single issue left for reference, FJA or some other old-timer may confirm my recollection.

Another word I coin around that time was "scientale", but apparently it never caught on. Now I wonder what "sfandom" will think of my latest creation, "sfan"? That term seems so natural and obvious I can hardly believe it's really new; but I haven't seen it anywhere else before.

—Allan Glasser  
Brooklyn, New York

*Any old timers who still have copies of The Time Traveller? And how about "sfan"?*

Dear Mr. Q:

I'm getting a little tired of all the protesting that only in the liberal arts can the true gospel of Man be found and the tendency to make the scientists the scapegoats for all the ills of the modern world.

Too many of today's men of affairs are proud that they know nothing about science, and as a result the world has a philosophy that the men of science and engineering are narrowly materialistic and heedless of human values.

Please make the following observation: Complete understanding of the destructive possibilities of an atom bomb does not mean that one must be built—somebody has to want one.

The nature of their work being what it is, skilled scientists and technicians usually work for the men of affairs. Can there then be so much questioning of their motives and values by the “humanists”?

—J. R. Ryder  
Chicago, Ill.

*This has all the earmarks of a good controversy. Who's on who's side?*

Dear Mr. Quinn:

I must air some comments on the delightful February issue. The Hunter cover and space satellite drawings were worth the price of the magazine itself. Have one question to ask. When did you change art editors? Since I missed the December issue, I don't know whether you changed then or with this issue.

And now to the inside. The short novel “Avoidance Situation” was extremely good. The writing some of the best I've seen in a long time. The Anderson novelette just didn't seem to click, though I usually like his stories very much. The rest of the stories were above average. The gem of the whole issue is “The Drivers” by Ed Ludwig. It's a most thought provoking story which takes today's reckless driving to perhaps the ultimate in story telling.

—Tom Driscoll  
Cincinnati, Ohio

*See what happens when you miss an issue? There's more to come on the satellite too. Better not miss any more.*

Dear Mr. Quinn:

I haven't had a chance to read more than a couple of stories in the February IF—“The Drivers”, incidentally was excellent—but as usual, I read the letter section and features first. May I dip a short oar into the controversy over G. W. Walton's viewpoint?

It's rather bold to say that anything is impossible. I can think of two circumstances under which time travel—physical, that is—would be conceivable. One is the Einsteinian theory of time as another dimension of space, on which present advanced science is based. Under this concept, the future exists and has existed just as the past and the present and no change can be made in it. A theoretical time traveler finds that his action changes nothing, because he was already back at the point to which he traveled in time and his influence there had a casual effect on circumstances before the backward jump—maybe even caused it. It is difficult to see, however, how a man could “skip” over a period of years in traveling either forward or backward in time.

The other possibility is one which has a part in African savage religions, the concept of the “fan-shaped” destiny. At every moment of choice, when the choice is evenly balanced, *both* courses are taken. This of course involves parallel time streams, and many parallel

worlds diverging from every possible point. A return to a parallel world then would involve no paradox. If we limit ourselves to proven facts in our themes, we have no science fiction.

—Charles Fontenay  
Madison, Tennessee

*See Mr. Fontenay's "Z" in this issue for one Einsteinian time concept . . . and tell us what you think.*

Dear Sir:

Mel Hunter has goofed! Take a copy of February IF . . . turn to the inside front cover. Look in the upper left hand corner. We see a three stager taking off; Minimum Orbital Unmanned Satellite of Earth. But all three stages have wings! Only the first stage needs wings and they are just to enable it to navigate a shallow orbit (straight up is needless and, at present, impossible). However, there will be no air after Stage I falls to earth and Stage II takes over as far as airfoils are concerned. That is, there will not be enough air with which to glide. Sheer momentum and free fall will hold it up.

—Jerry Page  
Decatur, Georgia

*Mr. Page, you are right! Hunter and editor both goofed. The drawing of the satellite rocket on page 35 will bear you out. And don't miss the August issue!*

Dear Editor:

Have read for years stories and articles on space travel that make

the false assumption that a person on the Moon or other planet of lighter-than-Earth gravity would be able to leap over obstacles of a height greater than those he could clear on Earth, the height being figured as inversely proportional to the decrease in gravity. The gentlemen who write such "data" say a man can jump over a five-foot obstacle on Earth; on the Moon, gravity is only one-sixth as strong; therefore he can jump six times as high or clear a thirty-foot obstacle! Sounds logical, but overlooks some of the important facts about how people jump—and confuses clearing an obstacle with lifting the human C.G. A six-foot man, standing, has a C.G. roughly three and a half feet from the ground. In leaping over a five-foot barrier, his C.G. will clear it by a foot or less; therefore he lifted two and one half feet, the other two and one half feet for clearing the obstacle being obtained by tucking up the legs. If I haven't overlooked some factors, then a man on the Moon should be able to leap over a seventeen-to eighteen-foot obstacle, hoisting his C.G.  $6 \times 2\frac{1}{2}$ , or 15 feet pulling his legs in for the rest. There should be another way to calculate this: a man on the moon would weigh one sixth of, say, one hundred and eighty pounds—or thirty pounds. Now, if we knew how fast a man's legs muscles could push an object weighing thirty pounds with an inertia of one hundred and eighty pounds, we could calculate how long that six-foot per sec (approximate) gravity of the Moon would take to stop and retrieve it, and



how far it would travel before it stopped.

—J. E. Cherne  
Hagerstown, Md.

*How about jumping obstacles under an air dome on the moon?*

Dear Mr. Quinn:

At present you are up with the other top magazines in maintaining a proper balance between fiction and the features. However, I disagree with Mr. Hallam of the Dec. '55 issue, regarding technical articles. IF has yet to produce articles as absorbing as those on Thiotimiline or the series Origins of Galactic Etiquette.

—K. H. Quinlem  
Brisbane, Australia

Dear Mr. Quinn:

How about more stories such as Raymond Jones' "Human Error" and Ed Ludwig's "The Drivers"? These have the ring of reality and authenticity. If I could have one wish, I think I would like to live as long as Methuselah. Reincarnation wouldn't be the answer—I wouldn't want to miss the next nine hundred years.

How about some more letters from lady S.F. fans? Interest in S.F. isn't silly girls, it beats love stories all to pieces. Then too, some of our great scientists are women. I have been an S.F. fan for five years and I'm proud of it.

—Margaret Wilhelm  
Freeland, Md.

## NEVER, EVER BEFORE, ANYWHERE!

7000 fantasy and science-fiction books and back-issue magazines at 50% to 90% under what they've cost you before, here or anywhere, while they last! LIST FREE.

### WEREWOLF BOOKSHOP

Shannon Rd., R.D. 2, Box 86K

Verona, Pennsylvania

## EDITOR'S REPORT

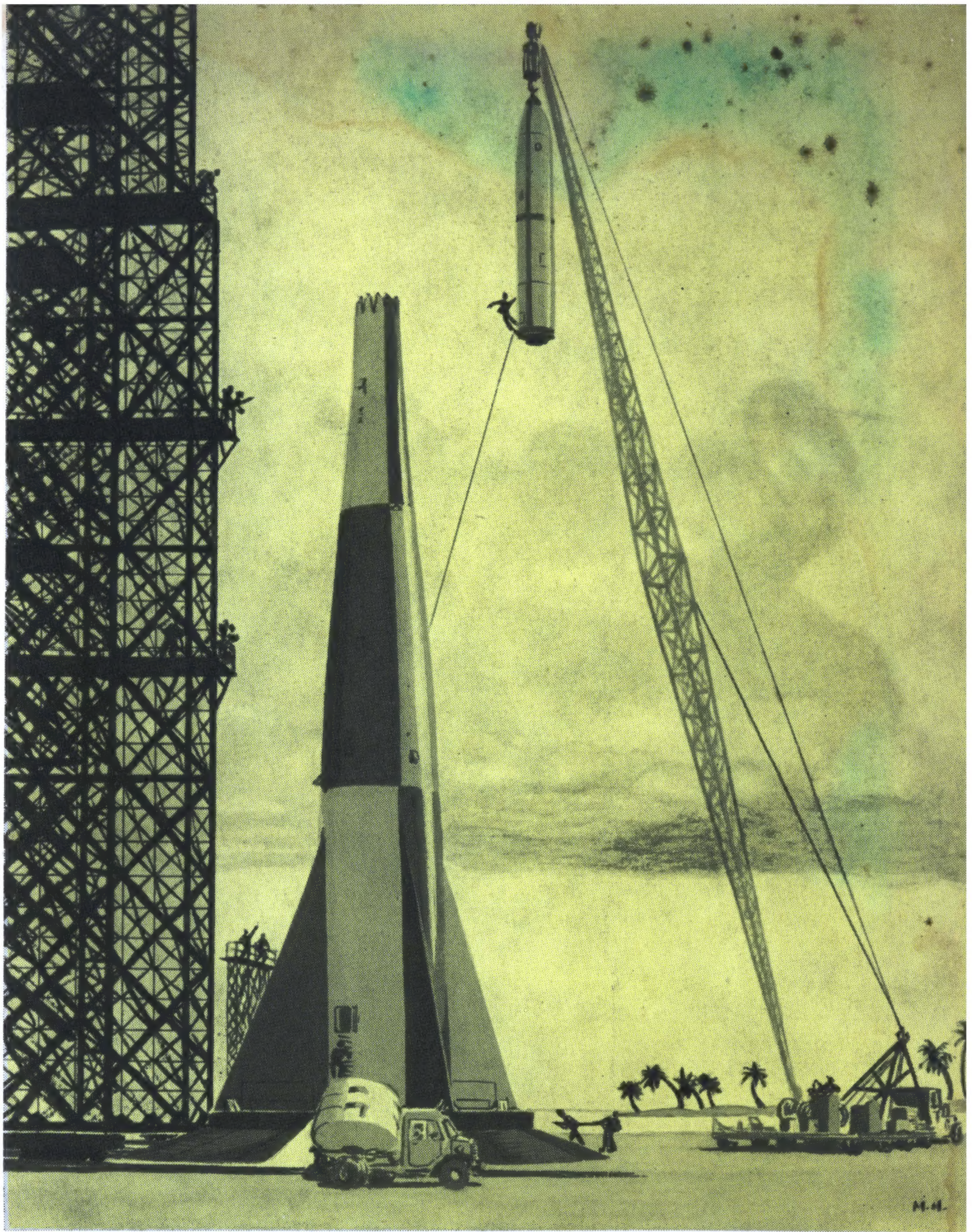
*(Continued from page 3)*

However, as you have no doubt surmised by now, their speculations on the Satellite are not idle conjecture but come from a wealth of working know-how and personal experience.

The first article (page 34) dismisses the "basketball" idea and presents the satellite as a giant needle, 19.5 feet in length and one foot in diameter, and discusses the requirements for getting it into space. The second article, which will appear in the August issue, goes into more detail and describes instrumentation, functioning, orbital behavior and transmission of intelligence.

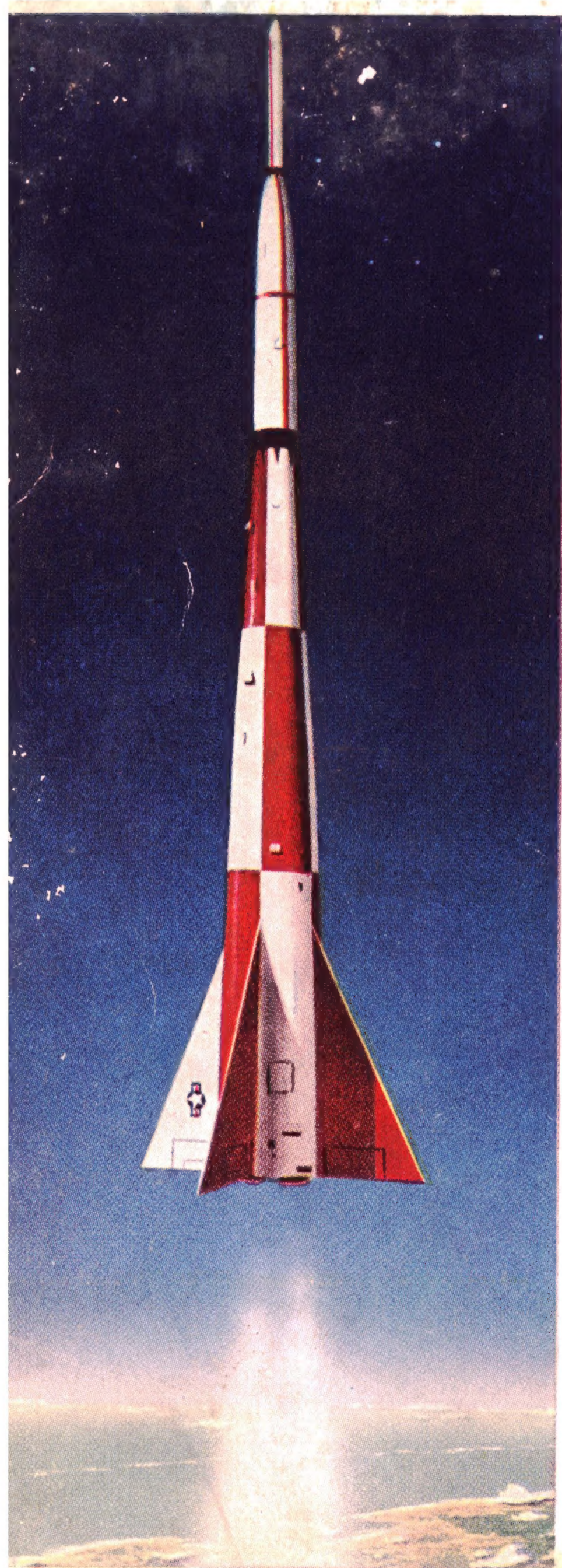
—jlq





**HOISTING STAGE TWO INTO POSITION**—Forty feet in length, Stage Two is shown being hoisted into position atop Stage One, one hundred feet high. The twenty foot Stage Three Satellite will be placed in position last. Monster gantry rig is built with adjustable crane arm to facilitate simultaneous rapid fueling of all three stages just prior to takeoff, in order to minimize boiloff of volatile oxidizer. Just before firing, tower will be pulled back to allow rocket to stand alone. Blockhouse is underground a half-mile away. Scene is near Patrick Air Force Base, Cocoa, Florida. (*Drawings by Mel Hunter*)





## Exciting New Worlds of Science Reading!

**if**

SOME of the finest science fiction to be found anywhere in the world is now appearing regularly in IF. Also, you will find exclusive, factual, authoritative articles on the sciences of today and tomorrow—by eminent scientists. Here (this copy is a sample), in a beautifully printed and illustrated magazine, is the world of the future in both fact and fiction.

But—have you enjoyed this issue? Then why not subscribe. If you do, we will send your—

### **FIRST ISSUE FREE!**

Your subscription brings you (bi-monthly) 12 issues for just \$3.50. But we will send the first issue as a gift, which means you get 13 issues in all. . . So, don't miss a single one of the important issues to come. Send your subscription to—

**IF Magazine**  
KINGSTON, NEW YORK